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SWAZILAND

ANNUAL MEDICAL & SANITARY REPORT

FOR THE YEAR 1954

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SWAZILAND.

ANNUAL MEDICAL AND SANITARY REPORT

FOR THE YEAR 1954.

I. ADMINISTRATION.

(a) Staff.

European.

	Director of Medical Services
1	Malaria Medical Officer
5	Medical Officers
1	Medical Officer (Health)
1	District Surgeon (Part-time)
1	Intern (Post vacant)
1	Health Inspector
1	Hospital Assistant and Dispenser
1	Dispenser, Storekeeper
1	Radiographer
14	Nursing Sisters
1	Clerk
1	Lady Clerk and Typist
1	Laboratory Assistant
2	Handymen (one post vacant)

African.

1	Medical Officer
1	Senior Hospital Assistant
2	Hospital Assistants
2	Dispensers
48	Nurses
2	Out-patient Attendants
2	Clerks
1	Laboratory Assistant
2	Ambulance Drivers
2	Dispensary Orderlies
15	Ward Attendants
4	Orderlies
2	Nurse Aides
1	Wardmaster
7	Cooks
1	Night Watchman
1	Office Messenger
2	Boiler Attendants
3	Hospital Groundsmen
16	Laundresses
2	Seamstresses
1	Senior Malaria Assistant
9	Malaria Assistants
1	Health Office Clerk
1	Lorry Driver
2	Orderlies (Laboratory)

Appointments and Changes in European Staff.

Name.	Office or Rank.	Date of		
		Appointment	Resignation.	Termination of Appointment
Dr. M.J. Welman	Medical Officer	1. 3.54	-	-
Miss S.D. Carter	Nursing Sister	1. 3.54	30. 8.54	-
Miss D. Rathbone	Nursing Sister	3. 6.54	30. 9.54	-
Mrs. G.M. Sivewright	Nursing Sister	-	-	15. 5.54
Miss B.M. Armand	Nursing Sister	-	31. 5.54	-
Miss R.K. Moody	Nursing Sister	19. 8.54	-	-

(Continued Overleaf)

Appointments and Changes in European Staff (continued).

Name.	Office or Rank.	Date of		
		Appointment.	Resignation.	Termination of Appointment
Miss J.A. Wilson	Nursing Sister	26. 8.54	-	-
Miss R.J. O'Shea	Radiographer	15. 9.54	-	-
Miss S.J.Alan-Allen	Nursing Sister	-	21. 9.54	-
Mrs. J. Scogings	Nursing Sister	1.10.54	-	-
Miss M.E.I.Rowson-Warren	Nursing Sister	1.10.54.	-	-
Miss C.Liell-Cock	Nursing Sister	1.10.54.	-	-
Mrs. B. Stanley	Nursing Sister	-	31.10.54.	-
Miss C.D. Buckley	Nursing Sister	-	11.11.54.	-

Reliefs.

Name.	Office or Rank.	From.	To.
Mrs. M.C.R. Morris	Lady Clerk.	1. 1.54	23. 1.54
		26. 1.54	24. 4.54
		10. 5.54	19. 5.54
		13.12.54	31.12.54
Miss A.A.R. Brant	Nursing Sister	6. 1.54	23. 1.54
Mrs. E.M. Willemsen	Nursing Sister	24. 1.54	30. 1.54
		12. 2.54	28. 2.54
		20. 5.54	24. 5.54
		1. 6.54	30. 7.54
		8. 8.54	2. 9.54
		24. 9.54	8.10.54
		15.11.54	20.11.54
Mrs. J. Peberdy	Radiographer	5. 4.54	21. 5.54
Dr. D. Drew, O.B.E.	Medical Officer	9.11.54	20.11.54
		13.12.54	18.12.54

Distribution of European Medical and Nursing Staff, etc. on 31st December, 1954.

Name.	Rank.	Station.
Dr. J.C.J. Callanan, O.B.E.	Director of Medical Services.	Mbabane.
Dr. H. Flack	Medical Officer	Mbabane.
Dr. L.E.D.F. Joubert	Medical Officer	Mbabane.
Miss M.E. Irvine	Nursing Sister	Mbabane.
Mrs. D.V. Seeton	Nursing Sister	Mbabane.
Miss R.K. Moody	Nursing Sister	Mbabane.
Mrs. J. Scogings	Nursing Sister	Mbabane.
Miss M.E.I.Rowson-Warren	Nursing Sister	Mbabane.
Miss R.J. O'Shea	Radiographer	Mbabane.
W. Palliser	Handyman	Mbabane.
Mrs. H. Perkins	Nursing Sister	Mankaiana.
Dr. O. Arnheim	Medical Officer	Hlatikulu
Dr. M.J. Welman	Medical Officer	Hlatikulu
Mr. J.L. van der Vyver	Hospital Assistant Dispenser	Hlatikulu
Miss J.A. Wilson	Nursing Sister	Hlatikulu
Miss M.J. Rowlands	Nursing Sister	Hlatikulu
Miss P.M. Reardon	Nursing Sister	Hlatikulu
Miss C. Liell-Cock	Nursing Sister	Hlatikulu

(Continued overleaf)......

(c) FINANCIAL.

Revenue 1954/55.

Hospital, Health Centre and other fees	£ 3,262

Expenditure.

Personal Emoluments	£37,731
Travelling Allowance	1,704
Allowances and Fees	765
Maintenance of Patients and purchase of medicines	14,030
Laboratory Services, S.A.Institute for Medical Research	100
Maintenance of Lepers	329
Maintenance of Lunatics	1,405
Specialist treatment in Union Hospitals for Indigents	37
Hospital Equipment	2,027
Uniforms for African Staff	708
Vaccination	150
Drug Replacement	-
Subsidies for Medical Services:- Church of the Nazerene Mission of South Africa £3,400, Red Cross £75, Roman Catholic Mission £100, Our Lady of Sorrows School £150, Mahamba Mission £1,088, Catholic Mission, Stegi £980, St. John Ophthalmic Hospital, Baragwanath £100	5,893
Anti-Malaria Measures	3,149
High Commission Territories Nursing Council, Travelling and other expenses	85
Upkeep of Grounds	105
Upkeep of X-ray Plants	18
Overseas Passages	-
Anti-Malaria Drugs for Sale	51
Transport of Stores	2,128
Transport of Silicosis and Leper Patients	137
Bilharzia Control Measures	670
Upkeep of Vehicles and Electric Light Plant	1,057
Tuberculosis Drugs	65
Purchase X-ray Plant (Hlatikulu Hospital)	92
Purchase New Ambulance	1,002
Anti-Malaria and Public Health Campaign Scheme D.1084	8,854
Leper Hospital, Scheme D.1017	1,274
Total Expenditure on Medical and Sanitary Services	83,566
Total Revenue of the Territory	£955,460
The relationship of Medical Expenditure (excluding Colonial Development and Welfare Fund Expenditure) to the total Revenue of the Territory	7.7%

FINANCIAL FIGURES FOR ANNUAL MEDICAL & SANITARY REPORT

FOR THE YEAR 1954 (Page 3)

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Distribution of European Medical and Nursing Staff, etc. on 31st December, 1954 (Continued).

Name.	Rank.	Station.
Miss S.McCorkindale, M.B.E.	Nursing Sister	Goedgegun.
Miss A. Martin	Nursing Sister	Hluti.
Dr. O. Mastbaum	Malaria Medical Officer	Bremersdorp
Miss J. Bredell	Laboratory Assistant	Bremersdorp
Dr. E.R.D. Eastman-Nagle	Medical Officer (Health)	Bremersdorp
Mr. G.J. van Eeden	Health Inspector	Bremersdorp
Dr. T.J. Malherbe	Medical Officer	On leave

(b) LEGISLATION AFFECTING THE MEDICAL DEPARTMENT, ENACTED DURING THE YEAR.

(i) Proclamation No. 49 Opium and Habit-forming Drugs (Amendment).
(ii) Proclamation No. 45 African Labour Proclamation.
(iii) Proclamation No. 59 Inquests Proclamation.
(iv) High Commissioner's Notice No. 8 Amendment of Urban Area Regulations.
(v) High Commissioner's Notice No. 68 Mbabane Water Supply Regulations.
(vi) Government Notice No. 7 Marking of Dogs Inoculated against Rabies.
(vii) Government Notice No. 7 and 9 Areas infected with Rabies.
(viii) Government Notice No. 14 Rabies Guard Area.

(c) FINANCIAL.

Revenue 1954/55.

Hospital, Health Centre and other fees	£

Expenditure.

Personal Emoluments	£
Travelling allowance	£
Allowances and Fees	£
Maintenance of Patients and purchase of medicines	£
Laboratory Services, S.A. Institute for Medical Research	£
Maintenance of Lepers	£
Maintenance of Lunatics	£
Specialist treatment in Union Hospitals for Indigents	£
Hospital Equipment	£
Uniforms for African Staff	£
Vaccination	£
Drug Replacement	£
Subsidies for Medical Services:- Church of the Nazarene Mission of South Africa £3410, Red Cross £75, Roman Catholic Mission £100, Our Lady of Sorrows School £150, Mahamba Mission £1140, Catholic Mission, Stegi £980, St,John Ophthalmic Hospital, Baragwanath £100	£
Anti-Malaria Measures	£
High Commission Territories Nursing Council, Travelling and other expenses	£
Upkeep of Grounds	£
Upkeep of X-Ray Plants	£
Overseas Passages	£
Anti-Malaria Drugs for Sale	£
Transport of Stores	£
Transport Silicosis and Leper patients	£
Bilharzia Control Measures	£
Upkeep of Vehicles and Electric Light Plant	£
Tuberculosis Drugs	£

Special Expenditure.

Purchase X-Ray Plant (Hlatikulu Hospital)	£
Purchase new Ambulance	£
Anti-Malaria and Public Health Campaign Scheme D.1084	£
Leper Hospital, Scheme D.1017	£
Extensions to Mbabane and Hlatikulu Hospitals and African Nurses' Home, Bremersdorp, Scheme D.1085	£
Extension of Medical Services in the Lowveld, Scheme D.1505	£
Total Expenditure on Medical and Sanitary Services	£
Total Revenue of the Territory	£
The relationship of Medical Expenditure (excluding Colonial Development and Welfare Fund Expenditure) to the total Revenue of the Territory	

NOTE:- Re: Section I (c) FINANCIAL.

The financial figures which are not available at the time of publication will be forwarded at a later date.

II. PUBLIC HEALTH.

(I). General Diseases.

In February arrangements were made whereby Dr. D. Ordman, Superintendent, Allergy Laboratories, South African Institute of Medical Research, was to visit this Territory in April in connection with his study of respiratory allergy in Africa. This is a subject which, in the case of the indigenous population of South Africa, is regarded as of importance as investigation might disclose fundamental issues in the etiology of the disease, but unfortunately the intended visit had to be postponed. As the following Government Hospital figures for Bronchial Asthma indicate there is some reason for assuming that the incidence of respiratory allergy which is generally of infrequent occurrence amongst the Bantu under tribal conditions is on the increase, and it has, in fact, outrun that of the urbanized native in Johannesburg.

Year.	In-patients.			Out-patients.		
	Europeans.	Africans.	Total.	Europeans.	Africans.	Total.
1932	-	-	4	-	-	-
1933	-	-	2	-	-	-
1934	-	-	4	-	-	-
1935	-	-	5	-	-	-
1936	-	-	5	-	-	-
1937	-	-	5	-	-	-
1938	-	-	13	-	-	-
1939	-	-	7	-	-	-
1940	-	-	9	-	-	28
1941	-	-	7	-	-	49
1942	-	-	16	-	-	72
1943	-	-	18	-	-	97
1944	-	-	20	-	-	297
1945	-	-	21	-	-	329
1946	2	20	22	5	78	83
1947	2	9	11	23	111	134
1948	5	9	14	24	94	118
1949	1	14	15	20	94	114
1950	-	21	21	31	51	82
1951	1	18	19	26	74	100
1952	1	12	13	6	68	74
1953	1	4	5	20	57	77

"-" = No record.

Rabies.

Prior to 1950 there was little evidence of hydrophobia in the Union of South Africa other than a smouldering infection in the Central area in parts of the Orange Free State, the Western Transvaal, and the Northern Cape, but in July of that year the disease made its appearance amongst dogs in Messina and in the valley of the Limpopo. The infection was subsequently reported in the Rhodesias, South West Africa, Bechuanaland and Portuguese East Africa, and there was a steady spread Southward in the Transvaal. Towards the end of 1953 a number of cases occurred in the Komatipoort ward of the Barberton District, and outbreaks were reported from the Ermelo District.

A dog died on the property of Messrs. Tung Oils Ltd. on 7th January, 1954, having exhibited symptoms which although not typical of Rabies infection, were suspicious. Brain specimens were submitted to Onderstepoort Laboratory where a definite diagnosis of Rabies was established. Nine persons who had been in intimate contact with the animal were immunized.

On the 16th January, 1954, a dog of unknown origin arrived at the Centre Dip on the property of the Swaziland Irrigation Scheme (C.D.C.) where six persons (5 Africans and 1 European) were bitten, and the animal later made successful attacks on three persons (2 European and 1 African) at Mananga, and one (African on 18th January, 1954) at Border Gate. All the victims received prophylactic treatment with Rabies Vaccine (Ultraviolet killed Virus), Rabies Iradogen (P.D. & Co.)

In face of these outbreaks which occurred at widely separated points in Swaziland the full provisions of the Diseases of Stock Regulations and supplementary legislation were brought into operation, and information on various aspects of the subject was supplied to the public by the Veterinary and Medical Departments through the medium of the press and other agencies, as occasion demanded.

In February 5 further cases of the disease in dogs from the following areas were confirmed both histologically and biologically: Malkerns, Nomahasha, Croydon, Nkambeni, and the Transvaal border in the Piggs Peak District. In March a further positive case was reported from Mliba Police Post, but brain specimens from suspected cases at the Swaziland Irrigation Scheme (C.D.C.), Mankaiana, Tank Area 19, and Goedgegun were found to be negative. It therefore appeared that infection was confined to a broad strip of country extending South West from the Transvaal Boundary, at Border Gate approximately parallel to the Balegane Road, and extending as far as Malkerns. On the basis of this assumption the Veterinary Authorities decided to create an immunised belt South and East of the area with the object of isolating the infection, immunization within the belt being deferred; and the former work was almost completed by the end of April.

In June one suspected case of the disease occurred in the Piggs Peak Bushveld area but the animal could not be captured. By this time the immunization campaign was progressing well into the infected area, Northwards from the protective belt, and the sections within the Mbabane, Bremersdorp and Stegi District had been completed.

In August three suspicious cases occurred, one in Native Area 22, Stegi, where a stray ownerless dog disappeared after biting three farm boys, and two in the vicinity of Piggs Peak section in dogs which had been inoculated two weeks previously. By the end of September all dogs with the exception of those in the Gollel area had been inoculated and the campaign was finally concluded in November. No further cases of Rabies occurred.

(II) Communicable Diseases.

(i) Malaria. As in the previous year, abnormally heavy rainfall at the onset of the 1953/54 transmission season produced conditions favourable for the breeding of the malaria vector, and necessitated the commencement of spraying operations early in November. 50% B.H.C. wettable powder with a 10% gamma content was generally employed in a concentration of 20 mg. per square foot of surface treated. Huts in the middleveld received one application in January, two were administered in the Bushveld areas (November/December and January/February), and hyperendemic zones in the latter area received an additional treatment during March.

121,087 huts were sprayed during the 1953/54 transmission season, as compared with 154,585 in 1952/53 and 71,951 in 1951/52, and of the former 95.3% were in Native Areas in the Bushveld and middleveld, 0.8% in the townships of Bremersdorp and Stegi, and 3.8% on European farms. In addition to the foregoing measures, 275 European houses were treated with 5% D.D.T. in Kerosene, and spraying operations were also carried out at the Hospitals and Gaols in Mbabane, Bremersdorp, Stegi, Mankaiana. Larvicidal operations with 27% D.D.T. Emulsion diluted 1/300 were carried out in the Bremersdorp and Stegi townships, at the Swaziland Irrigation Scheme (C.D.C.) and on other irrigation projects in the Southern portion of the Territory.

The Dieldrin experiment mentioned in the previous year's Report resulted in the recovery of adult A. gambiae in the treated huts 18 weeks subsequent to the application of this insecticide in a concentration of 25 mg. per square foot, and the unsatisfactory residual effect, as compared with the results achieved by other workers, may be attributable to the use of too weak a solution (2 oz. of 50% wettable powder per gallon of water), or to absorption. Further experiments on an extended scale using a surface concentration of 33 mg. per square foot are being carried out during the present season, in two separate areas. Although the cost of Dieldrin in the concentration mentioned is one third greater than that of B.H.C. the duration of its residual effectiveness under local conditions is a matter of considerable importance owing to the rising cost of labour and transport. In this connection it is estimated that the cost of spraying operations with Benzine hexachloride, which amounted to 15 pence per hut or 12½ pence per head of total population per annum in 1953, has risen to 19.4 pence and 13.1 pence during the year under review.

The incidence of malaria in 1954 as indicated by the number of cases treated at the District Hospitals decreased considerably, 58 cases being recorded as compared with 574 in 1953.

The distribution of cases was as follows, the figures for 1953 being shown in brackets for purpose of comparison:-

Manzini-Stegi District	53.9%	(43.0%)
Mbabane-Pigg's Peak District	43.0%	(19.6%)
Hlatikulu	3.0%	(25.5%)
Mankaiana	0.0%	(11.7%)

The cases of malaria treated by field and laboratory staff given in the following table show a further decrease on the 1952 figure which was previously the lowest on record:-

1954.	Field Staff.	Laboratory $^{(x)}$
January	18	0
February	5	0
March	13	0
April	7	0
May	18	0
June	0	0
July	0	0
August	0	0
September	0	0
October	2	0
November	2	0
December	0	0
Total	65	0
1953	335	2
1952	81	0
1951	181	4
1950	798	29

(Note (x) = microscopically diagnosed.

The occurrence of heavy rains in October and November, 1954, again necessitated early spraying operations which commenced in the middle of the latter month. In December abundant breeding of A. gambiae was found to be taking place on irrigation projects in the Big Bend area and Nsoko, as a result of seepages and flooding, and schemes for the use of larvicides were brought into operation in supplementation of anti-adult control, which, under such conditions, have proved to be inadequate. The progressive increase in the areas under which crops are being grown under irrigation, and the consequent extension of the Malaria Control Programme has outrun the capacity of the staff of the Malaria unit, and in an effort to augment it inroads are being made into the time of the Health Inspector at the expense of his normal duties.

The overall parasite rate in children during the non-transmission season in controlled areas was found to have fallen to 0.8% as compared with 3.7% in 1953, and 2.1% in 1952, the pre-epidemic year. The overall parasite rate in children in controlled areas during the transmission season of 1953/54 gave a record low figure of 1.8% which fell to 0.5% in infants. The overall parasite rate was 8.1% and 5.6% during the non-transmission seasons of 1953 and 1954 in the Swaziland Irrigation Scheme (C.D.C.). Those figures are to be regarded as extremely satisfactory as they coincided with parasite rates of 43% and 57.5% in uncontrolled areas marching with the bushveld area in the Stegi District.

(ii) Smallpox. No case of Smallpox was reported within the territory during the year. A mass vaccination campaign was carried out in the south of the territory, under the supervision of the Medical Officer (Health), as sections of the population were known to be in a low state of immunity, no vacation on a large scale having been performed in that area since 1951.

Details of the work are given below:-

Month	Area	Primary Vaccinations	Re-vaccinations	Total.
August	Native Area No. 31.			
	Matanjeni	564	409	973
	Gollel	681	1021	1702
	Ingwavuma Bridge	104	158	262
	Lubuli	296	282	578
	Sifutaneni Store	309	449	758
	Olakeni Mission	222	487	709
	Hlushwane Cross Roads	356	641	997
September	Native Area No. 31.			
	Hluti	637	1593	2230
	Native Area No. 32			
	Mantambe Bridge	314	589	903
	Native Area No. 32.			
	Mhlotsheni	643	1138	1781
	Native Area No. 33			
	Mtombe	576	648	1224
	Native Area No. 21.			
	Dwaleni Store	1444	1592	3036
	Mozane	901	881	1782
	Honeck	124	223	347
	Mahamba Hospital	1707	2091	3798
October	Mkondo Bridge	552	701	1253
	Native Area No. 19			
	Gege Store	723	1024	1747
	Native Area No. 17.			
	Sikunuza Post Office	663	871	1534
	Natiye Area No. 30.			
	Goedgegun	689	1576	2265
	Native Area No. 30.			
	Hlatikulu	492	1094	1586.
	GRAND TOTAL	11997	17468	29465

The vaccination of Police, prisoners and Medical Department Staff was carried out on a routine basis in all districts.

(iii) Schistosomiasis.

(Hospital Cases : In-patients 117
Out-patients 602).

719 cases were treated at the Central Hospitals during 1954, as compared with the following figures during the previous eight years:-

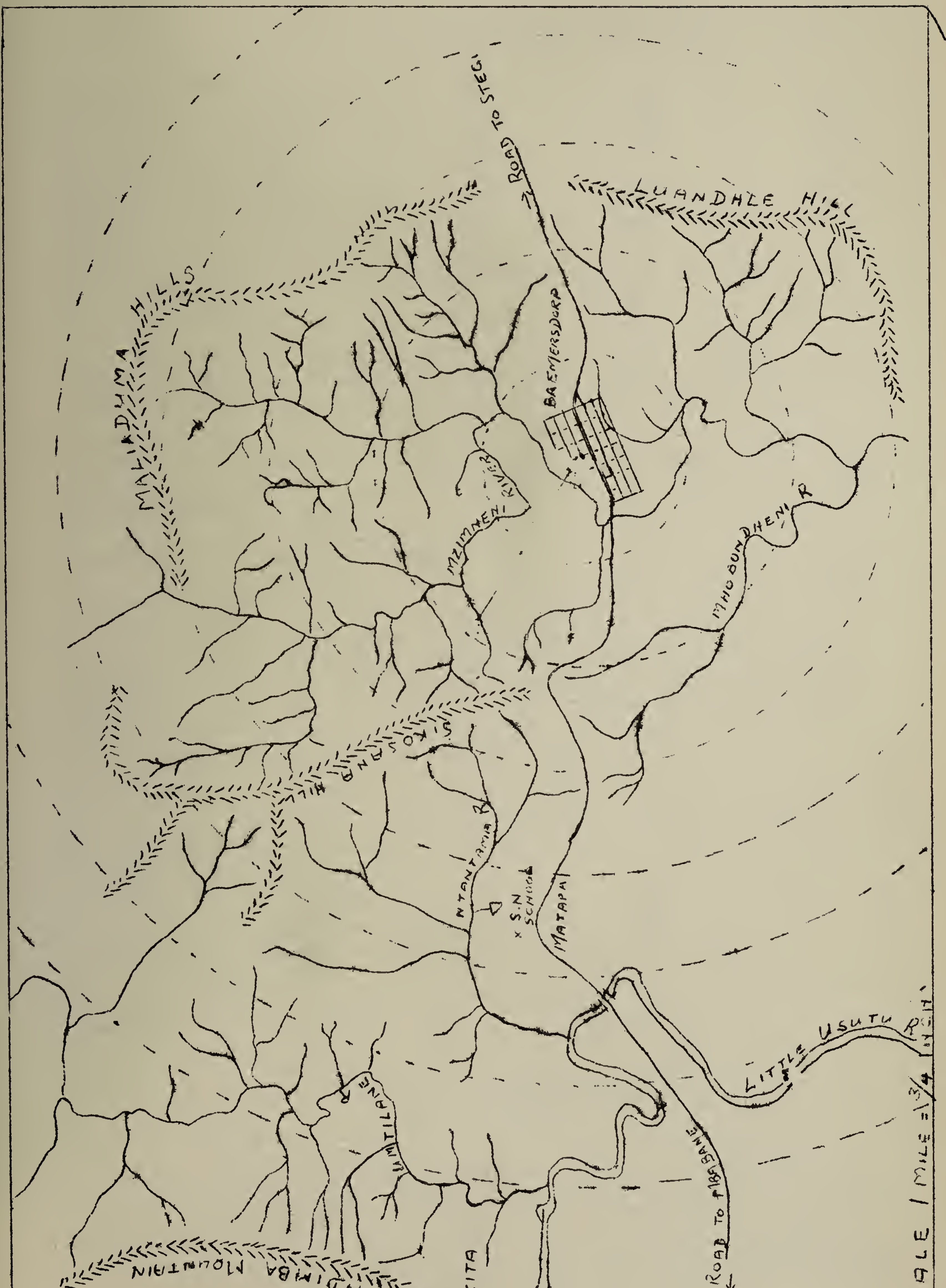
1953	606 cases
1952	650 "
1951	604 "
1950	642 "
1949	424 "
1948	530 "
1947	354 "
1946	470 "

The case distribution was as follows, that pertaining to 1953 being shown in brackets :-

Manzini-Stegi District	41.4%	(39.0%)
Mbabane-Mankaiana-Pigg's Peak District	33.6%	(40.9%)
Hlatikulu District	24.9%	(19.9%)

BILHARZIA CONTROL AREA.

BREMERSDORP AND MATAPHA AREA.



It is not possible to state whether the prevalence of the disease is increasing as the large number of cases recorded may be entirely attributable to an increased readiness on the part of sufferers to submit to treatment.

The frequency of Bilharziasis amongst schoolchildren in Bremersdorp and its vicinity, as determined by the examination of a single specimen of urine, is shown in the following table :-

School	Month	No. examined	No. positive	% positive.
Little Flower	February	338	204	60.0%
Central	March	298	126	42.3%
Nazerene	April	494	155	31.4%
Methodist	May	53	25	47.2%
Coloured	May	78	8	10.2%
Zombode	June	413	180	43.6%
Lozitha	August	111	34	30.7%
Matapha	August	318	124	39.0%
TOTAL		2103	856	40.7%

The results of treatment of cases at the Schools of the Little Flower and Nazerene Mission are shown below and are based on examinations carried out two months subsequent to the completion of the course.

School	Drug.	No. treated	No. negative.	% cured.
Little Flower	"Nilodin" (B.D.&Co.)	154	81	52.6%
Nazerene	Sodium Antimony Tartrate	73	42	57.5%

In November and December, and acting on the advice of Dr. J. Schneider of the Coronation Hospital, Johannesburg, 102 cases taken at random from the Nazerene Hospital, Bremersdorp, the Good Shepherd Hospital, Stegi, and the Clinic at the Swaziland Irrigation Scheme (C.D.C) were examined by the Medical Officer (Health), using the rectal biopsy technique, with the following results :-

Sex.	Age Group	No. examined	S.haematobium	% Positive	S. Mansoni	% Positive
Male	0 - 11	3	2	66%	0	0%
"	12 - 17	14	6	43%	1	7%
"	18 & over	39	22	56%	3	8%
Total		56	30	54%	4	7%
Female	0 - 11	1	1	100%	0	0%
"	12 - 17	3	2	66%	0	0%
"	18 & over	42	19	45%	2	5%
Grand Total		102	52	51%	6	6%

It is significant to note that all cases of Schistosoma mansoni infestation so far discovered during the recent survey were in persons resident in the lowveld, but the incidence in the present series of cases, which admittedly is not representative of the lowveld proper, is very much lower than that reported from the well-irrigated Nelspruit- and Barberton Districts (i.e. 84.2%), adjoining the Northern boundary of this territory.

The pilot Bilharziasis Control Scheme which was inaugurated in September 1952 and initially confined to the Msimneni catchment area ("Bremersdorp Basin") comprising 20 square miles of country, and which had been extended to 27 square miles in 1953, was increased by 23 square miles in 1954, in order to embrace the Matapha and Zombodi areas where the infestation rate in schoolchildren was 39 and 43.6% respectively. The population of the area is assessed at 15,000 Africans and 700 Europeans. It was intended, and indeed it is still our aim, to carry out sulphation operations at quarterly intervals, but shortage of staff and the increased work connected with malaria control measures, resulting from the development of irrigation schemes and epidemic conditions, has reduced the number of sulphations from 10 (potential) to 7 (actual) during the life of the scheme. This has adversely affected the results of the control programme and diminished its cumulative effect.

The following table shows the result of the snail survey in the Bremersdorp areas, and the marked reduction in the snail population which has been attained through the use of Copper Sulphate as a molluscocide.

Date.	Locality	Collected before Sulphation.			Date.	Collected after Sulphation.		
		Physopsis	Limnae	Biomphalaria.		Physopsis	Limnia	Biomphalaria.
August 1st	Msimneni River (Upper)	10	8	-	Oct. 2nd	-	-	-
2nd	Msimneni River (Weir)	25	84	-	2nd	-	-	-
5th	Magola Stream	20	63	-	2nd	2	4	-
6th	Mahlabatini (Upper)	64	90	-	2nd	5	12	-
7th	Mahlabatini (Lower)	83	65	8	2nd	-	-	-
8th	Hlambamazoka (Upper)	24	32	-	3rd	-	-	-
9th	do. (Lower)	63	82	-	3rd	8	4	-
11th	Msimneni River (near Madonsa)	54	137	4	3rd	-	-	-
12th	Madonsa Stream (Upper)	65	98	-	3rd	-	-	-
13th	do (Lower)	225	294	12	3rd	8	18	-
14th	Jabavu	215	264	-	3rd	25	36	-
15th	Canal (Town Supply)	115	175	-	7th	-	4	-
16th	Furrow (Williams Farm)	35	89	-	7th	-	-	-
18th	Dams do.	85	165	-	7th	9	14	-
19th	Gobagoba River	245	223	-	7th	2	12	-
20th	Manzini River	174	114	-	7th	-	-	-
21st	Esidini Upper	157	250	1	7th	-	-	-
22nd	Esidini Lower	245	268	10	8th	54	36	-
23rd	Msimneni (Brickfields)	554	700	15	8th	-	4	1
25th	Msimneni (Jabavu)	845	1200	22	8th	68	84	2
26th	Msimneni (Jabavu to Abattoir)	1250	2060	41	8th	14	21	6
27th	do. (below Abattoir)	654	850	5	8th	16	12	-
28th	Club Stream	354	263	-	9th	-	14	-
29th	Furrow and Dam (Pendray)	154	123	-	9th	-	4	-
30th	Stream at Veterinary Camp	195	59	-	9th	5	7	-
	Totals	5910	7755	118		216	6	9

The infectivity rate for Physopis specimens examined (2080) in August 1952 was 14%, but no infected Biomphalaria specimens (118) were discovered at that time. The survival rate (October 1954) for Physopsis, Limnaea and Biomphalaria has been 4, 3.7 and 8% respectively.

The following table shows the results of snail density tests before and after the first sulphation, and the survival rates for that period:-

SNAIL DENSITY TEST - BREMERSDORP AREA.

Location of Selected Points.	Before Sulphation August 1952			After Sulphation October 1952.		
	Physopsis	Limnae	Biomphalaria	Physopsis	Limnae	Biomphalaria
Mahlabatini Stream	8	16	1	-	-	-
Hlombomozoka River	4	12	-	-	2	-
Madonsa	15	24	2	1	1	-
Jabavu	29	25	1	4	6	-
Gobagoba	22	38	-	1	4	-
Williams Dam	7	9	-	-	-	-
Msimneni River (Upper)	1	4	-	-	-	-
Msimneni River (Central School)	9	14	-	-	1	-
Msimneni River (Brickfields)	45	54	4	2	5	-
Msimneni (Bridge)	64	78	8	5	8	
Msimneni (Abattoir)	15	26	2	-	-	-
Club Stream	28	16	-	-	4	-
Total	247	316	18	13	31	-

Survival Rate of Physopsis = 5.3%
" " " Limnae = 9.8%
" " " Biomphalaria = 0.0%

The foregoing tests were carried out with the Barlow scoop, but were abandoned after the first sulphation owing to the low snail catahes, only the total collections in the controlled areas being recorded for purposes of comparison. No Bulinus forskali nor Bulinus tropicus, though known to be present in the territory, have been discovered during the present survey. All snail identifications were carried out at the Health Office, Bremersdorp.

Following on the clinical survey in the Matapha and Zombodi areas, which revealed infestation rates of 39% and 43.6% respectively, a malacological survey was undertaken in April 1954, and the results of this are shown in the following table :-

SNAIL SURVEY - MATAPHA AREA.

(Tributaries to the Ntantama River were numbered 1 to 7. Tributaries (flowing from East to West) to the Mtilomi numbered 8 to 13 and those flowing from the Edimba Mountains (from West to East) from 14 to 23).

Date.	Locality.	Before Sulphation.			After Sulphation, May 1952.		
		Physopsis	Limnae	Biomphalaria.	Physopsis	Limnae	Biomphalaria.
19.4.54	Tributary 1	50	35	-	-	-	-
19.4.54	" 2	54	32	-	4	3	-
19.4.54	" 3	43	28	4	2	1	-
20.4.54	" 4	-	-	-	-	-	-
20.4.54	" 5	63	75	-	6	9	-
21.4.54	" 6	84	32	2	17	24	-
21.4.54	" 7	35	18	-	-	-	-
22.4.54	" 8	-	-	-	-	-	-
22.4.54	" 9	64	48	6	4	8	-
22.4.54	" 10	54	68	-	13	2	-
23.4.54	" 11	-	-	-	-	-	-
23.4.54	" 12	54	20	-	-	-	-
23.4.54	" 13	30	15	8	9	-	-
26 to 28 4.54	" 14 - 23	--	-	-	-	-	-
29.4.54	Lozita	-	150	-	-	12	-
29.4.54	Makombeni Furrows	45	26	-	-	-	-
29.4.54	Dawson's Furrow	32	15	-	-	-	-
30.4.54	Matapha School Dam	97	24	-	-	-	-
	Total	705	586	20	55	59	-
	Survival Rate of Physopsis ± 8%						

The overall infectivity rate for snails in the Matapha area was 12%, the highest incidence (17%) being found in the Matapha dam. An interesting observation, which requires further investigation, was the finding that all tributaries of the Mtilani River, flowing from the Ndinba Mountain, i.e. from west to east, were devoid of molluscs. It is estimated that 52.2 miles of watercourses (29.9 miles in the Bremersdorp area and 22.3 miles in the Matapha area) are now being treated during the rains, the distance being reduced by 60% in the dry season.

The working strength of copper sulphate, i.e. 5 pints of stock solution (2. lbs $CuSO_4$) to 19 pints of water, has been determined by biological experiments and it gives a 100% mortality after 30 minutes contact. The concentration achieved is approximately 30 p.p.m of $CuSo_4$ = 7.5 p.p.m of Cu. Blue colouration as an indicator of effective concentration has proved to be unreliable under local conditions.

As might be expected the following table shows that re-infestation of water courses increased with the lapse of time between sulphations, and experience has shown that the optimum interval should not exceed three months. This would only be possible if the available funds were increased or the area controlled is reduced to its original dimensions, i.e. 20 square miles.

TOTAL NUMBER OF SNAILS COLLECTED IN THE CONTROLLED AREAS BEFORE AND AFTER EACH SULPHATION.

		Before Sulphation.	After Sulphation.	Survival Rate.
1st Sulphation September	1952	13783	231	1.6%
2nd Sulphation December	1952	865	51	± 6%
3rd Sulphation June	1953	2340	254	± 11%
4th Sulphation July	1953	254	20	± 8%
5th Sulphation October	1953	185	12	± 7%
6th Sulphation April	1954	1984	79	± 4%
1st Sulphation (Matapha Area) May	1954	1311	114	8.6%
7th Sulphation September	1954	1330	38	± 3%
2nd Sulphation (Matapha Area) October	1954	412	25	± 6%

The annual cost of control is shown in the following table, which does not take into account the cost of equipment, supervision, or the value of prison labour employed in cleaning and drainage work in certain areas.

ONE SPRAY IN RAINY SEASON.			TWO SPRAYS IN DRY SEASON.	
Copper Sulphate	5650 lbs.	£224	6000 lbs.	£238
Labour	8 boys 2½ months	80	8 boys 1½ months	96
Transport (Petrol)		20	Petrol	38
		£324		£372

The total annual expenditure was therefore £696.

The pilot scheme has proved most valuable to the Department in providing data regarding the ecology of the local snail population and the most effective and economical manner of control, and we are greatly indebted to Mr. van Eeden, Health Inspector, for the important work which he has performed in connection with the scheme and for his unflagging energy and enthusiasm.

In supplementation of the pilot scheme, a scheme for an Investigational Survey and Supervisory Control on Irrigation projects has been prepared and is receiving consideration from the financial aspect.

(iv) Tuberculosis (Pulmonary).

Hospital Cases:	
177	In-patients
224	Out-patients

401 cases received treatment at the main hospitals, as against the following numbers in previous years :-

1953	376 cases
1952	304 "
1951	304 "
1950	396 "
1949	281 "
1948	253 "
1947	196 "
1946	300 "

The increase in the number of cases is ascribed to improved

facilities for treatment rather than to an increase in the incidence of the disease. In addition to the cases (401) referred to above, 61 new cases were treated at the Arthur Matthews Methodist Hospital at Mahamba, and 39 (35 O.P.) attended the Good Shepherd Mission Hospital at Stegi.

The case distribution as between districts was as follows :-

Manzini-Stegi District	75%
Mbabane-Mankaiana-Pigg's Reak District	15.2%
Hlatikulu District	9.7%

The relatively high incidence of cases treated in the Manzini area is partly attributable to the more ready availability of accommodation for patients in that area.

The percentage of tuberculosis admissions on total admissions at four hospitals in the territory is given in the following table :-

Hospital.	Total Admissions.	Pulmonary	Non Pulmonary	Total Tuberculosis admissions.	% of Tuberculosis admissions on total admissions. 1954.	1953.	1952.
Mbabane	2994	32	41	73	2.4	2.6	1.6
Hlatikulu	1677	19	32	51	3.0	2.3	2.3
Mankaiana	927	1	3	4	0.4	0.4	1.4
Raleigh Fitkin Memorial Hospital	2712	126	26	152	5.6	4.8	3.9

The twenty-bedded Tuberculosis Block at the Raleigh Fitkin Memorial Hospital, Bremersdorp, was formally opened on 2nd April and the first patients were admitted to fifteen-bedded Tuberculosis Block at the Methodist Mission, Mahamba, at the beginning of November. Both institutions receive financial grants from Government, and in common with Government Hospitals and the Good Shepherd Mission Hospital at Stegi receive supplies of P.A.S. (Sodium) and Isoniazid from Government stocks for the treatment of necessitous cases of Pulmonary Tuberculosis, Tuberculous meningitis and the disease in its Miliary form. The scheme for the provision of facilities for the isolation and treatment of selected cases of Pulmonary Tuberculous at Mbabane and Hlatikulu Hospitals has been approved and a twelve-bedded unit is under construction at Hlatikulu. A similar block will be erected at Mbabane in 1955.

Dr. Thomson, Tuberculosis Consultant, W.H.O., visited the territory in January (21st to 24th) and inspected various centres; and his advice and assistance was greatly appreciated. He expressed satisfaction with the plans which had been formulated in connection with Tuberculosis Control measures, and the steps which were being taken to carry them into effect.

Tuberculin tests (Mantoux Dil. 1/1000) carried out in February on 264 Primary and Secondary School Children at Mahamba Mission by the Medical Superintendent of the Mission Hospital gave positive results in 53% of cases, which is similar to that found in the Hlatikulu Highveld (56.6%) in 1950.

(v) Dysentery.

(Hospital Cases : In-patients 228
Out-patients 391)

The incidence of this group of diseases decreased by 31% as compared with the previous year, and is the lowest recorded since 1949.

The extent to which the disease preponderated in its various forms is indicated below, the figures in respect of 1953 being shown in

parenthesis:-

Amoebic Dysentery	30.5%	(31.2%)
Bacillary Dysentery	68.6%	(68.2%)
Type undifferentiated	0.8%	(0.5%)

(vi) Gastro-enteritis and Colitis.

(Hospital cases	(a) Between 4 weeks & 2 years	268	In-patients
		862	Out-patients
	(b) Age 2 years and over	43	In-patients
		613	Out-patients
	(c) Chronic Enteritis and ulcerative colitis	1	In-patient
		3	Out-patients

The prevalence of these diseases showed a further decrease of 14.0% in comparison with 1953, which in turn had decreased by 6.2% as compared with the previous year. The progressive decrease in gastro-intestinal diseases of infective origin is attributable to the reduction in the fly population following residual spraying of huts, improvement in water supplies and domestic hygiene.

The frequency of these diseases in the various district is shown below:-

	1954	1953	1952.
Manzini-Stegi District	21.9%	23.9%	47.8%
Mbabane-Pigg's Peak-Mankaiana District	50.1%	35.7%	27.9%
Hlatikulu District	27.9%	40.3%	24.1%

(vii) Venereal Diseases.

The total number of cases of Syphilis have increased by 4.8%, while those of gonorrhoea have decreased by 2.9%, as compared with 1953, which showed a decrease of 10.1% and 5.8% respectively on the previous year.

The number of fresh cases of venereal diseases treated during the last eight years is shown in the following table, from which it will be observed that the post-war peak in incidence was reached in 1951/2 and that the prevalence is now tending to decline.

Year.	Syphilis	Gonorrhoea.	Other Venereal Diseases.	Total
1946	3041	649	16	3076
1947	2988	936	18	3942
1948	3212	1043	19	4274
1949	4449	1296	31	5776
1950	4140	1761	25	5926
1951	4608	1934	-	6542
1952	4349	2096	19	6464
1953	3908	1973	17	4898
1954	4098	1815	0	5913

The fluctuations in the frequency of the diseases in various areas are tabulated below:-

	Syphilis		Gonorrhoea	
	Increase	Decrease	Increase	Decrease
Mbabane	3.2%	15.8%	-	25.5%
Mankaiana	3.7%	-	24.8%	-
Mbabane-Pigg's Peak District	-	20.6%	3.0%	-
Hlatikulu Hospital	6.0%	-	46.2%	-
Goedgegun	-	12.0%	21.4%	-
Bremersdorp	19.6%	-	-	25.7%
Manzini-Stegi District(General)	70.8%	-	4.5%	-
Stegi (Nazerene Health Centre)	20.5%	-	-	38.2%
Stegi (District Surgeon)	-	4.7%	1.2%	-
Mahamba Area	77.7%	-	235.0%	-

	Mbabane Hospital.	Mankaiana Cottage Hospital.	Other Health Centres Mbabane-Pigg's Peak-Mankaiana Districts (Northern District)	Hlatikulu Hospital	Health Centres Hlatikulu (Southern District)	Arthur Matthews Methodist Hospital Mahamba	Raleigh Fitkin Memorial Hospital Bremersdorp	Health Centres Manzini-Stegi (Central District)	District Surgeon, Stegi	Lesters Health Centre	Lubuli½Gollel	Swaziland Irrigation Scheme (C.D.C)	TOTAL
I. SYPHILIS.													
(A) Early Syphilis (i) Primary	105	-	-	46	-	-	82	-	-	-	-	-	233
(ii) Secondary	95	231	-	147	-	-	234	-	-	-	-	-	707
(iii) Early Latent (Asymptomatic)	158	39	-	78	-	-	1	-	-	-	-	-	276
(B) Late Syphilis (i) Skin, mucosal, bone muscle, joint	1	3	-	-	-	-	-	-	-	-	-	-	4
(ii) Cardiovascular	-	-	-	-	-	-	1	-	-	-	-	-	1
(iii) Neurosyphilis	-	-	-	-	-	-	3	-	-	-	-	-	3
(iv) Late Latent (Asymptomatic)	-	-	-	-	-	-	-	-	-	-	-	-	-
(C) Congential													
(i) Early (under 2 years ofaage)	-	57	-	-	-	-	21	-	-	-	-	-	78
(ii) Late (over 2 years of age)	-	37	-	8	-	-	6	-	-	-	-	-	51
(D) Undifferentiated	451	-	326	1	546	160	-	880	300	13	26	42	2745
TOTAL	810	367	326	280	546	160	348	880	300	13	26	42	4098
II. GONORRHOEA (i) Acute	437	136	103	136	351	67	156	254	158	10	22	54	1884
(ii) Chronic	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	437	136	103	136	351	67	156	254	158	10	22	54	1884
III. OTHER VENEREAL DISEASES	6	1	-	1	-	-	7	-	-	-	-	-	15
IV. RE-ATTENDANCES.													
Syphilis	5420	2691	1389	1465	2383	1260	1332	3557	517	20	77	80	20191
Gonorrhoea	527	258	69	278	194	5	66	155	155	-	5	118	1830
Other Venereal Diseases	32	-	-	-	-	-	-	-	-	-	-	-	32
TOTAL RE-ATTENDANCES	5979	2949	1458	1743	2577	1265	1398	3712	672	20	82	198	22053

The distribution of cases as between districts and institutions throughout the territory is given in the table on page 16.

The results of a clinical trial of Procaine Penicillin G, with aluminium monostearate (P.A.M) as a single injection of 2.4 mega units in the treatment of syphilis are tabulated below :-

Stage of disease.	M	F	Total	W R POSITIVE	W R NEGATIVE	Clinical cures	Defaulters. M	F	Total	% age.
1	15	14	29	24	5	14	9	6	15	52
2	24	64	88	83	5	12	17	59	76	86
3	3	1	4	4	-	1	2	1	3	75
Cong.	2	0	2	?	?	0	2	0	2	100
Total	44	79	123	111	10	27	30	66	96	78

Although the results of this investigation have been vitiated by the high defaulter rate, a 100% clinical cure in cases examined three weeks after receiving the "epidemiological dose" and a case of re-infaction, coupled with the fact that the patients are rendered non-infectious and that cure in other countries has occurred in a high proportion of cases with the dosage mentioned, has induced the department to arrange for the adoption of the "one shot" treatment as a standard form of therapy in appropriate cases during 1955.

(viii) Typhoid and Paratyphoid Fever.

187 cases, with 3 deaths, were reported from the Manzini-Stegi (59 cases, 3 deaths), Hlatikulu (54) and Mbabane-Pigg's Peak-Mankaiana (34) in 1954, as compared with 88 in the previous year. The case mortality was 1.6% which is the lowest on record, and this is entirely attributable to the use of Chloramphenical.

With the exception of localised outbreaks in the Magele area in the vicinity of Hlatikulu during the first quarter of the year, and another at Mtlosheni in July, the cases followed the sporadic pattern of previous years. Outbreaks at the Nazerene School, Bremersdorp, and a farm at Mahlenya in November were investigated, and in the former case serum from close contacts, cooks and other food handlers gave negative results to the Vi test. Prophylactic inoculations were carried out on a larger scale than in previous years.

(ix) Diphtheria.

There were 4 cases, with 2 deaths, as compared with 11 cases and 4 deaths in 1953. Two occurred in the Manzini District, one in the Mbabane area, and one in the vicinity of Lesters Clinic.

(x) Whooping Cough.

The incidence of this disease was 40.5% less than in 1953 and the distribution of cases was as follows :-

District.	No.of cases	Deaths
Manzini District	100	-
Hlatikulu District	82	-
Mbabane-Pigg's Peak-Mankaiana District	63	1
Havelock Mine	4	-
Total	249	1

(xi) Acute Poliomyelitis.

Although this disease had been present in the Transvaal and Natal for some time previously, the first 2 cases to be reported in Swaziland

did not appear until the end of October. These occurred at Eranchi (Swaziland Irrigation Scheme C.D.C.) and two further cases made their appearance at Mapapha and Mbabane before the close of the year. Early in December the Government Hospital and all servants' quarters throughout Mbabane were sprayed with Dieldrin as a precautionary measure with a view to inhibiting the transmission of poliomyelitis by flies, and instructions regarding the use of hygienic measures were issued to the public. It is believed that the disease in an inapparent or abortive form has been has been far more widespread that would appear from the number of reported cases, but there was nothing to indicate that infection has penetrated south of the Usutu River before the end of 1955.

(xii) Measles.

139 cases were recorded, as against 573 in 1953. The relative frequency of the disease as compared with three years is shown below :-

District.	Cases 1954	1953	1952	1951
Manzini-District	40	273	50	14
Mbabane-Pigg's Peak-Mankaiana District	13	138	37	58
Hlatikulu District	6	135	12	8
Havelock Mine	80	27	87	15
Total	149	273	186	95

(xiii) Chicken-pox.

65 cases were reported, as against 202 in 1953. The case distribution was as follows :-

District	Cases
Mbabane	21
Manzini	19
Havelock	16
Hlatikulu	9
Total	65

(xiv) Relapsing Fever.

No case was reported in 1954.

(xv) Tick Typhus.

Nine cases were reported from the Mbabane District and one from Manzini. As in the previous year, no cases were notified from the Havelock Mine area or the Hlatikulu District. The seasonal distribution of cases was again irregular, but almost half of the Mbabane cases occurred in April on this occasion.

(xvi) Influenza.

The prevalence of this disease was slightly less than in the preceeding year, and almost 60% of the cases were derived from the "Northern District".

The general distribution of cases was as follows :-

Mbabane-Pigg's Peak-Makkaiana District (Northern)	937
Manzini-Stegi District	267
Hlatikulu District	211
Havelock Mine	172

(xvii) Cerebro-Spinal Meningitis.

Thirteen cases with three deaths occurred as against fourteen in 1953. The majority of the cases were reported from the Havelock Mine (7) and the remainder appeared in the Mbabane area (4) and the Manzini District. All were sporadic in character.

(xviii) Epidemic Parotitis.

32 cases were reported, but the disease was far less prevalent than in the previous three years.

(xix) Infectious Mononucleosis.

No cases were reported during the period under review.

(xx) Leprosy.

The staff of the Mbuluzi Leper Hospital comprised a Medical Superintendent (non-resident), an European Matron, a Nurse and a Chaplain and Liason Officer.

The number of in-patients on the 31st December 1954 was 51, i.e. 14 adult males, 20 adult females, 8 male and 9 female children, as compared with 46 in 1953. The average number of patients was 47.5 as against 40 in the previous year, and this represents an increase of 4.3% in the number of inmates.

Health of Patients.

The health of the patients has been good throughout the year, and the general pattern of disease has been similar to that of the previous year, when a few suffered from lepra reaction, and many from trophic ulcer of the extremities arising at the site of burns and injuries to parts rendered insensitive by leprotic nerve damage.

Additions to Population.

	Male's	Females	Total
Admissions	19	18	37
Re-admissions	-	5	5
Desertions	-	-	-
Totals	19	23	42

Losses in Population

	Males	Females	Total
Deaths	1	2	3
Desertions	-	-	-
Discharges	10	20	30
Total	11	22	33

Origin of Patients.

District.	Males	Females	Total.	%
Mbabane	5	5	10	27.1%
Mankaiana	5	7	12	32.5%
Bremersdorp	2	2	4	10.8%
Pigg' Peak	1	2	3	8.0%
Hlatikulu	3	5	8	21.6%
Totals	16	21	37	100%

Duration of Disease before Admission.

Duration	Admissions	Percentage
0 - 1 years	14	37.8
1 - 2 years	5	13.5
2 - 3 years	7	18.9
3 - 4 years	5	13.5
4 - 5 years	-	-
5 plus	6	16.3

Classification on Admission.

Classification	Admissions	Percentage.
Lepromatous	11	29.8
Neural	21	56.7
Combined Neural and Lepromatous	5	13.5

Average age on admission: 28 years.

Proportion of Children to Total Admissions.

There were 6 admissions of children under the age of 16 years out of a total of 37 admissions, i.e. 16.2%

Treatment: (General).

The number of attendances at the dispensary was 14.925 as compared with 17,293 in 1953, 18,895 in 1952 and 23,734 in 1951.

21 patients were admitted to the hospital wards in 1954, the total number of in-patient days being 2235, as compared with 2004 in 1953, and 1856 in 1952.

The following were the in-patient diseases :-

Lepra reaction	8
Trophic ulcer	7
Mental Disease	4
Epilepsy	2
Blindness	2
Influenza	2
	31

As in 1953 almost the only form of therapy used was Diaminodiphenylsulphone (D.A.D.P.S.) in tablet form per os. Dosage ranged from 0.1 gm once a week to 1 tablet (0.1 gm) three times per day in certain cases. This treatment has been combined with iron and vitamin B in the form of Blauds Pills and Yeast tablets. A few cases were treated with Isoniazid in conjunction with D.A.D.P.S. with no noticeable improvement as compared with the latter drug alone. A few cases are still being treated with P.A.S. and Isoniazid on combination.

Laboratory Examinations.

229 smears from patients were examined during the year for the presence of B. leprae, with the following results :-

Type		Positive		Negative		Total
		Nasal	Skin	Nasal	Skin	
Lepromatous		-	42	-	51	93
Neural		-	1	-	112	113
Combined		-	9	-	14	23
Totals		-	52	-	177	229

Vital Statistics.

The population figures of the 1946 census are given below :-

	Males.	Females.	Total.
Europeans	1727	1474	3201,
Coloured	359	380	739
Swazis	91014	87617	178631)
Foreign Africans	2371	267	2638)181,269
Asiatics	5	1	6
Total	95476	89739	185215

Total European Population	3201
Total European Births	78
Total European Deaths	23
Birth rate per 1000	24.3
Death rate per 1000	7.1
Infant mortality rate	0.0

Table showing causes of Death:

Causes of Death	Number of Deaths.
Diseases of the heart, and other diseases of the Circulatory system	14
Carcinoma	5 (1 of lung).
Pneumonia	1
Cirrhosis of Liver	1
Violence	1
Hydatid Cyst of Brain,	1
Total	23

Registration is not compulsory in the case of the Non-European population.

III. HYGIENE AND SANITATION.

A. (i) Preventative Measures.

(a) Malaria. 121,087 huts were treated with Benzenehexachloride, as compared with 154,585 in 1953, 73,000 in 1952, 36,550 in 1951 and 23,000 in 1950. As in 1953 D.D.T. Emulsion was employed as a larvicide in Bremersdorp and Stegi townships and in certain areas in which crops were being grown under irrigation.

(b) Smallpox. In addition to routine vaccinations carried out at the main stations, a mass vaccination campaign involving the immunization of 29,465 persons was carried out in the Hlatikulu District.

(c) Typhoid and Paratyphoid Fevers and other Salmonella infections.

All outbreaks were carefully investigated and prophylactic measures were taken against the dissemination of infection in every instance. Advise regarding preventative measures was communicated to the public through the medium of the press and notice boards throughout the territory. The prevalence of diseases in this group was greater than in the previous year.

(d) Diphtheria and Whooping Cough. Small scale immunization of children against these diseases is carried out on a routine basis.

(e) Schistosomiasis. The progress of the Bilharziasis Control Scheme in the Bremersdorp-Matapha-Zombode areas is dealt with earlier (p.8 et seq.) in this report.

(ii) General Measures of Sanitation.

(a) The residual effect of Benzenehexachloride and D.D.T. used throughout the malarious areas of Swaziland has again proved efficaceous in combatting the fly menace, though further evidence of acquired resistance has appeared in certain Native Areas and on European farms, particularly in the Big Bend and Great Usutu Section. Experiments carried out with Dieldrin proved that this insecticide had no lethal effect on flies which had developed a resistance to other insecticides. African living quarters within the malaria control areas are remarkably free from cockroaches, fleas, fishmoths and other insects, which are commonly met with in untreated areas. Experiments performed at the Public Health Laboratory showed that Ornithodorus moubata, the local vector of Spirillum Fever, is killed as readily by Dieldrin as by B.H.C. Insecticidal measures were carried out at Sandhla and Msinduza townships in Mbabane as a precautionary measure against poliomyelitis.

(b) Water Supplies. Specimens of water from the main supply at Bremersdorp and Stegi were examined bacteriorology at quarterly intervals and the results were communicated to the Government Engineer and the local authorities concerned. The temporary pumping plant at Bremersdorp again proved inadequate during the winter months, when restrictions had to be imposed on the watering of gardens, with a view to conserving supplies for other essential purposes. The gas chlorinators are still out of commission, and it is necessary to resort to manual methods of dosing with chloride of lime. The Stegi water supply has been supplemented by impounding water, derived from a stream, and pumping it to a reservoir from which it is delivered by gravitation. No filter or chlorinator has yet been provided. The position at Goedgegun remains unchanged, and untreated water pumped from an open furrow is distributed to householders. The new water supply for Mbabane is being installed, and reticulation through the township area is approaching completion. The Filters have not yet been completed and chlorination is not taking place. Warnings have been issued to the Public at Mbabane, Bremersdorp and Stegi, against the use of untreated water for domestic purposes.

(c) Conservancy and Refuse Disposal. In Bremersdorp the system of bucket latrines is gradually being dispensed with, and it is intended to adopt similar measures in other urban areas when the water supplies improve. No plans are passed for pail closets and the Public is making use of septic tanks to an increased extent. The practicability of introducing a night soil removal system by "vacuum tanker" for the congested commercial areas of Mbabane and Bremersdorp is being explored, as the small size of stands permit of no other satisfactory system of sewage disposal in the absence of sewers. The provision of a new public latrine block (trough latrine and septic tank)at the Government offices in Bremersdorp, has rectified a most insanitary situation which hitherto existed in the centre of the township. A similar block is under construction at the African Market to replace a number of insanitary structures which will be demolished when this is completed. The refuse removal system conducted by the Town Inspector in Bremersdorp, with the use of prison labour, has worked satisfactorily. A system of incineration and "controlled tipping" is under consideration. At Mbabane very little progress has been made in this field, and every effort made to introduce a rubbish removal service for the business area has proved abortive, but these services are conducted satisfactorily in the townships of Goedgegun, Stegi and Hlatikulu. Following representations made by this Department, the Urban Regulations were amended (High Commissioner's Notice 8 of 1954) to provide for the establishment of Sanitary Services, for the removal and disposal of night soil and other refuse to be carried out by Town Inspectors subject to the instructions of the Medical Officer, and this may be regarded as a landmark in sanitary progress.

(d) Drainage. Drainage problems are dealt with by the Health Office as they arise. Several notices have been served on defaulters and it has not been necessary to institute legal proceedings in any instance.

(e) Bush-clearing. Notices requiring plot-holders to clear their premises of undergrowth and vegetation have been served on several property owners in the urban areas, and in three occasions, in Bremersdorp, it has been necessary for the local authority to have the premises cleared, the expense being recovered from the owners. In the same township, a mechanically-operated cutter has been acquired by the local authority and this has helped to solve the problem of dense overgrowth on Government land and vacant plots during the summer rains.

(iii) School Hygiene.

The routine medical inspection of school children was carried out at St. Mark's School, the Trades School, Mbabane, the Swazi National School, Matapha, Goedgegun European School, Our Lady of Sorrows School, and St. Michaels and the Little Flower School in the Bremersdorp Area.

(iv) Labour Conditions.

The South African Railways & Harbours authorities at Bremersdorp have constructed a compound of the rondavel type for their African staff, with water-borne sewage, and proper ablution and cooking facilities. This scheme should reduce the squatter population surrounding the urban area. Temporary housing on certain European farms, where cultivation of land under irrigation is being carried out on a large scale, leaves much to be desired, and steps are being taken to induce the owners to provide suitable accommodation for their labour. The housing conditions on the Swaziland Irrigation Scheme (C.D.C) has improved considerably, and the rationing of labour at this and Usutu Orchards (C.D.C) are on a sound basis. No outbreaks of infectious disease in epidemic form have been reported from major agricultural undertakings where large numbers of Africans are accommodated in compounds.

Suitable accommodation and sanitation have been provided for labour employed at the newly opened Canning Factory at Malkerns.

(v) Buildings.

Building development, both private and Government, has taken place on a fairly large scale during the year. Schemes of importance at Bremersdorp were two trade premises to the value of £18,000 and Bank premises valued at £15,000. Extensions to the Raleigh Fitkin Memorial Hospital estimated to cost £21,000 are under consideration. At Mbabane a block of flats valued at £7,000 is being built, and the Public Works Department is in process of completing major extensions to its offices, and a new Court House and Administrative Offices in the Coronation Park. The old Police Headquarters has been replaced by a modern double storied building. 64 Building plans were submitted to the Health Office by local authorities for examination. The estimated value of these structures, excluding Government buildings, was £139,500. Routine inspections of buildings were carried out by the Health Inspector.

Following a house to house inspection carried out by the Medical Officer (Health) at Goedgegun and Hlatikulu, notices were served on major offenders under the Urban Area Regulations. It has been necessary to order the demolition of one insanitary building in the centre of Goedgegun. Similar proceedings were carried out in Bremersdorp, resulting in the condemnation of 4 dwellings, one of which has already been demolished. At Mbabane action was taken against a property owner, over the demolition of a structure in

which 3 European families were housed and an African compound sited on the same premises. These buildings have not been demolished.

The Department has warned the Local Authorities on numerous occasions regarding uncontrolled building developments in and around the Urban Areas, i.e. at Msunduza Township and Sidwashini at Mbabane, Msinduza and Logoba in Bremersdorp, and similar conditions are present in the vicinity of Stegi, Hlatikulu and Goedgegun. The latest example of these undesirable tendencies is taking place at Matapha where an unauthorised township is being laid out without any regard for the principles of sanitation, and without a potable water supply.

Three 3 bedroomed houses for European officials were built at Mbabane, Bremersdorp and Stegi. Five houses of the rondavel type were constructed for the use of the police at Mbabane, and six existing African houses at Hlatikulu were improved by the addition of kitchens, bathrooms and lavatories. Two houses (Type N.F.2/50 and N.F.3/54) are under construction at Stegi, and one N.F.3/54 type house and one of the Basutoland type are in course of erection at Mbabane and Goedgegun respectively.

(vi) Food in relation to disease.

(a) Trade Premises. The examination of foodstuffs and the inspection of trade premises have been carried out in the Urban Areas of Bremersdorp, Stegi and Mbabane; but again this work had to be subordinated to the demands imposed by the need to ensure the effectiveness of Malaria and Bilharziasis control measures which make heavy inroads into the time of the Health Inspector.

The number of inspections and re-inspections are recorded below:-

General Dealers	121
Butcheries	86
Resturants	22
Bakeries	13
Native Eating Houses	12
Hotels	12
Dairies	8
Bremersdorp Creamery	5

Reports on Hotel premises were submitted to the various Liquor Licencing Boards.

Traders are now alive to the dangers of selling unsound food. No cases of food poisoning have been reported during the year.

(b) Meat Supplies. Routine meat inspections were carried out at all Government controlled abattoirs in the territory, but owing to shortage of staff and the demands imposed on the Veterinary Service by the Rabies outbreak, routine inspection has not been carried out as regularly as might be desired. Stock Inspectors have rendered invaluable assistance in "screening off" a certain percentage of cysticercosis in slaughter animals.

A "deep freezer" designed to hold 14 - 16 carcases installed by a Bremersdorp butcher at a cost of £1,600 has operated satisfactorily. 83 carcases have been treated by this means, with considerable resultant savings to the trade.

Figures relating to meat inspection during 1954 are as follows :-

Place	Inspected			Carcases condemmed to be frozen, cooked or destroyed.		
	Cattle	Sheep	Pigs.	Cattle	Sheep	Pigs.
Mbabane	357	41	85	12	-	12
Stegi	310	-	23	34	-	-
Hlatikulu	87	1	3	6	-	2
Goedgegun	1254	343	1251	115	-	23
Totals	2302	398	371	170	-	37

The incidence of "measles" at Bremersdorp and Stegi, where adequate expert supervision of inspection is available is approximately 10%, while at Hlatikulu, Mbabane and Goedgegun, it is 8%, 4% and 1% respectively. Steps are being taken to improve sanitary conditions on cattle ranches.

The abattoirs at Bremersdorp and Mbabane are still under construction, delay in completion being attributable to difficulties associated with the supply of materials.

B. Measures taken to spread the knowledge of Hygiene and Sanitation.

Propaganda pamphlets, covering a wide range of subjects, obtained through the courtesy of the South African Red Cross Society, were distributed to schools throughout the territory. These pamphlets and posters were displayed at demonstrations given in association with a series of lectures given by the Medical Officer (Health) and Health Inspector to African Cattle Guards at Mpisi Government Farm as part of their standard training. At the request of the Principal Education Officer, the Medical Officer (Health) prepared an article on Bilharziasis for publication in the November issue of the African Teachers Journal.

Whenever an opportunity presented itself farmers were advised individually of the measures necessary to improve the health of their labour, and avoid financial loss arising from neglect of the principles of rural sanitation.

C. Training of Personnel.

The following figures give the number of students in training at the Ainsworth Dickson Nursing School, at the Raleigh Fitkin Memorial Hospital, Bremersdorp, at the end of the year:-

Year.	Nurses	Midwives	Total
1st	11	2	13
2nd	8	1	9
3rd	14	-	14
4th	4	-	4
5th	1	-	1
Totals	38	3	41

The results of the examinations conducted in January and November 1954 are tabulated below:-

Certificate.	Preliminary		Final	
	Passed.	Failed.	Passed	Failed.
High Commission Territories Nursing Council.				
General Medical and Surgical	7	3	4	1
Midwifery, Part I	2	-	-	-
" Part II	-	-	1	-
Swaziland Executive Nursing Committee.				
Preliminary Examination	19	1	5	-

6 Students eligible (Standard VIII) to train for the High Commission Territories Nursing Council Certificate were admitted, but the education standard has since been raised to Junior Certificate, the course being 4½ years.

11 Students, with a minimum educational qualification of Standard VI were admitted to the 4 year course for the Swaziland Executive Nursing Committee Certificate.

The High Commission Territories Nursing Council Course for Midwives (Educational Qualification Standard VIII pro tempore) is 9 months for qualified nurses and 18 months for others.

IV. MATERNITY AND CHILD WELFARE.

(a) Mbabane, Pigg's Peak and Mankaiana Districts.

44 Europeans and 829 Africans attended the weekly ante-natal clinic at Mbabane Hospital, where 522 deliveries were conducted as compared with 369 in 1953 and 268 in 1952. There were 64 attendances of mothers at the Child Welfare Clinic at Mapapha, where 3 confinements were conducted by the School Nurse. 280 babies attended.

The number of maternity cases dealt with at Health Centres is shown in the following table :-

Health Centre	No. of cases.
Mankaiana	120 (98)
Horo	20 (22)
Government Farm	28 (22)
Hebron	3 (5)

(Note: 1953 figures are given in brackets).

(b) Manzini and Stegi District.

Raleigh Fitkin Memorial Hospital, Bremersdorp.

Ante-natal attendances	2230
Child Welfare attendances	2648
Confinements	383

Table showing the number of Maternity cases at Nazerene Mission Health Centres.

Health Centre.	No. of cases.
Stegi	77 (80)
Endingeni	100 (75)
Pigg's Peak	54 (81)
Mliba	22 (18)
Mafuteni	20 (15)
Bhekinkosi	- (2)
Balegane	9 (6)
Malinda	17 (10)
Ebenezer	34 (32)
Mayiwane	27 (7)
Total	360 (326) x

(x = 1953 figures in parenthesis).

(c) Hlatikulu District.

Clinic	Ante-Natal First Attendances	Confinements.
Hlatikulu Hospital	362 (10)	126 (5)
Goedgegun	1103 (18)	1
Mhlotsheni	142 (6)	1
Hluti	118 (3)	-
Sipofaneni	155	6
St. Phillips	338	-
Lubuli	118	-
Gollel	58	-
Our Lady of Sorrows	-	7 (1)

(The figures in brackets denote European cases).

(continued overleaf)

V. HOSPITALS AND DISPENSARIES (HEALTH CENTRES).

(a) Mbabane Hospital.

Number of beds (European)	10
Number of beds (African)	98
Number of cots (African)	20

At the end of August, the Steam Laundry was put into operation, and the cold room was completed at the end of the year.

Daily average number of In-patients (European)	5.6
Daily average number of In-patients (Eurafrican)	1.22
Daily average number of In-patients (African)	123.9

The progressive increase in in-patients is indicated in the following table, which summarises the figures of the previous eight years.

Year.	Daily average No. of In-patients		
	European	Eurafrican	African.
1946	0.9	0.15	74.9
1947	0.65	0.42	69.6
1948	0.88	0.65	71.1
1949	1.2	0.59	79.5
1950	1.2	1.1	72.2
1951	1.3	0.8	88.2
1952	3.2	0.5	101.0
1953	5.0	0.6	108.2

Staff.

2 European Medical Officers,
1 African Medical Officer,
5 European Nursing Sisters,
1 Dispenser/Storekeeper,
1 Radiographer,
1 Hospital Assistant,
1 African Dispenser,
1 African Wardmaster,
24 African Nurses,
1 Dispensary Orderly,
2 Out-patient Attendants (Nurses)
8 Ward Attendants,
2 Orderlies,
2 Nurse-Aides,

	1946	1947	1948	1949	1950	1951	1952	1953	1954.
Admissions	2287	2217	2210	2237	1966	2491	2557(170)	2795(253)	3248(254)
Deaths	41	28	51	55	57	49	72(3)	80(7)	100(6)
Confinements	170	303	339	299	276	318	268(28)	372(30)	522(44)
Operations	215	193	297	398	441	389	555(183)	772(236)	693(261)
Out-patients (New cases)	8916	8547	8945	9422	12893	14159	13287 (2699)	15348 (3769)	15763 (3201)
Out-patients (re-attendances)	3913	6953	9173	11472	14059	15496	13722 (3715)	16912 (4810)	17997 (5185).

(Note: European cases, which are included in the totals, are shown in brackets).

European out-patient attendances at Mbabane greatly exceed those of other stations, though, in common with the latter, they show a slight recession as compared with 1953.

Station.		Average per month					
		New Cases		Re-attendances		New cases	
		Male	Female	Male	Female	Officials	Non-officials
Mbabane	1946	53.2	56.9	33.9	51.3	-	-
	1947	55.3	54.6	54.5	54.3	-	-
	1948	61.6	57.4	68.2	82.1	16.6%	80.3%
	1949	86.1	77.6	67.6	106.6	18.7%	81.3%
	1950	125.5	102.2	136.5	142.5	18.7%	81.2%
	1951	128.3	108.3	128.6	123.5	11.4%	88.5%
	1952	124.1	101.0	140.7	123.8	13.8%	86.1%
	1953.	156.3	129.3	187.1	214.0	13.4%	86.2%
	1954	142.3	124.3	132.9	208.0	15.6%	84.3%
Bremersdorp	1952	62.5	55.6	19.5	17.9	12.3%	87.6%
	1953	64.5	42.6	14.9	8.4	5.4%	94.5%
	1954	58.3	44.6	18.2	15.0	5.5%	94.4%
Hlatikulu	1952	16.4	15.3	44.1	22.7	9.1%	90.8%
	1953	21.8	22.2	25.0	28.4	15.2%	84.7%
	1954	19.7	16.4	14.9	14.7	18.9%	81.1%

(b) Hlatikulu Hospital.

Number of beds (European)	8
Number of beds (Eurafrican)	3
Number of beds (African	30
Number of Cots (African)	3

Daily average number of Inpatients (European)	1.13
Daily average number of In-patients (Eurafrican)	0.10
Daily average number of In-patients (African)	67.8

The yearly figures for the last eight years are given below:

Year.		Daily average number of In-patients		
		European.	Eurafrican	African
1946		2.5	0.7	65.2
1947		3.33	0.61	65.2
1948		2.54	0.46	74.5
1949		1.7	0.52	66.6
1950		1.5	0.4	63.6
1951		2.0	0.7	72.5
1952		1.4	0.9	80.1
1953		1.4	1.0	73.3

Staff.

2 Medical Officers,
4 European Nursing Sisters,
1 Intern (post vacant)
1 European Hospital Assistant/Dispenser,
1 African Hospital Assistant,
1 African Laboratory Assistant,
1 African Dispenser,
15 African Nurses,
1 Dispensary Orderly,
5 Ward Attendants,
1 Orderley (with effect from 7th January 1955).

Year	1946	1947	1948	1949	1950	1951	1952	1953	1954
Admissions	2245	1647	1313	1483	1814	1896	1900(96)	1923(82)	1739(62)
Deaths	46	43	50	56	59	55	54(1)	55(0)	42(3)
Confinements	150	188	198	202	159	148	170(16)	124(6)	126(5)
Operations	112	256	241	242	258	299	542(43)	179(23)	200(28)
Out-patients (New cases)	12145	6955	5169	4414	5676	7009	8298(410)	8117 (529)	7450 (433)
Out-patients re-attendances		2342	2894	3549	2803	1700	3336(806)	3396 (639)	3911 (356)

The halt in the upward trend in attendances at Hlatikulu Hospital is attributable to some extent to staff changes and increased medical facilities in the South West portion of the District, but it is mainly due to unavoidable delay in improving and extending the hospital accommodation.

The revised plans for hospital extensions make provision for the following accommodation

	Male	Female	Children	Totals
European	5	6	-	11
Coloured	5	7(a)	3	15
Africans	34	36(b)	11	81
Isolation	2	2	-	4
Totals	46	51	14	111

((a) including 3 maternity and 1 labour room)
((b) including 10 maternity and 2 labour rooms).

The following improvements are also included in the programme:

(i) New Coloured Block. Accommodation provides for a combined European and Coloured Entrance, separate waiting and consulting rooms, one 5 bedded Mens Ward, a 3 bedded Childrens Ward, a 3 bedded Female Ward, a 3 bedded Maternity Ward, and 1 Labour Room.

(ii) A New Kitchen Block, comprising bulk equipment stores, issue stores, cold room, preparation and wash-up, separate African, European and Coloured cooking areas, main servery and African Nurses Dining Room.

(iii) New Laundry.

(iv) New African Wards.

(v) New Out-patient Wing, comprising consulting room, dispensary and office, laboratory, waiting room, two garages and sanitary annexes.

(vi) Isolation Wing, containing two 2 bedded wards with separate sanitary, storage and duty room facilities.

(vii) Alterations and Improvements to Existing Buildings,

(viii) New Mortuary.

Work on the foregoing projects is expected to commence in May 1955.

An Electrocardiograph was presented to the hospital by the Hlatikulu Division of the Swaziland Branch of the British Red Cross Society in December.

(c) Raleigh Fitkin Memorial Hospital, Bremersdorp.

Number of beds (European)	8
Number of beds (African)	68
Number of beds (Eurafrican)	4

Admissions.

Year	Europeans	Eurafricans	Africans	Deaths.
1946	281	116	2154	42
1947	264	117	1814	60
1948	232	92	2082	82
1949	201	80	1823	83
1950	228	92	2305	110
1951	274	64	2760	95
1952	197	66	2852	84
1953	260	83	2975	91
1954	171	51	2754	103

Daily average number of In-patients (European) 3.8
Daily average number of In-patients (Eurafrican) 1.7
Daily average number of In-patients (African) 117.1

Staff.

1 Medical Superintendent,
1 Medical Officer,
2 Interns,
1 Radiographer (part time)
12 Nursing Sisters, (one on leave)
2 Bookkeepers (one part time)
1 Housekepper,
1 Secretary,
15 African Nurses,
1 African Midwife,
41 Probationer Nurses,
1 Female Clerk,
4 Male Clerks,
1 Dispensary Assistant,
1 Laboratory Assistant,
20 Maids,

Out-patients 1954.

New cases	8416
Re-attendances	8616
Total	17032

(d) Havelock Mine Hospital.

The figures relating to members of the General Native Population treated at the Mine Hospital are shown in the following table:

	1946	1947	1948	1949	1950	1951	1952	1953	1954.
Admissions	141	113	81	189	175	68	89	124	65
Out-patients (New cases)	333	47	79	79	88	559	546	613	470
Re-attendances	2285	128	147	395	124	535	1239	779	460
Daily average no. of In-patients	3.3	3.4	2.7	4.18	5.0	1.35	1.9	2.3	1.4

(e) Arthur Matthews Methodist Mission Hospital, Mahamba.

The figures relating to the work carried out at this hospital are given below:-

	Europeans.	Africans
Admissions	27	565
In-patient days	209	4267
Confinements	12	38
Deaths	1	39
Operations - Major	2	21
Minor	16	161

contd.

contd.

	Europeans	Africans
Out-patients (New cases)	368	3450
Out-patients (re-attendances)	848	2622
Malaria Cases	3	4
Bilharziasis	1	18

(f) Swaziland Irrigation Scheme (.C.D.C)

Data connected with the Medical work on this scheme is summarized in the following table :-

	Europeans		Africans		Totals
	E	GNP	E	GNP	
Admissions	40	2	215	16	273
In-patient days	258	6	1144	69	1477
Confinements	2	1	29	2	34
Deaths	0	0	6	1	7
Out-patients (New cases)	231	18	3151	351	3751
Out-patients (Re-attendances)	288	27	3457	554	4326
Operations	11	1	101	26	139
Malaria	0	0	0	2	2
Bilharziasis	0	0	49	7	56

(Note: "E" = Employees and dependants,
"GNP"= Non Employees)

Malaria control measures on this project have been highly satisfactory during 1954.

(g) Dispensaries (Health Centres).

The number of cases treated at dispensaries in various parts of the territory are shown in the following table :-

Dispensary.	In-patients.	Out-patients.			
		New Cases.		Re-attendances	
		E	N.E.	E	N.E.
Horo	-	7	4619	-	3640
(a) Hebron	-	-	513	-	144
Government Farm	-	-	1239	-	484
Goedgegun	-	266	4480	114	2019
Mhlotsheni	-	78	1485	23	442
Hluti	-	138	1288	58	840
Lesters	-	2	917	-	388
Sipofaneni	-	10	1288	8	340
St. Phillips	-	-	2265	-	673
Our Lady of Sorrows	-	39	5803	18	36
Lubuli-Gollel	-	28	1461	2	403
Total	-	568	25358	223	9409
Mankaiana Cottage Hospital x	927	34	6518	70	3795

("E" = Europeans, "N.E." = Non-Europeans, "x" = figures additional to those shown in the Return of Diseases for Government Hospitals (Appendix I)).

((a) Closed for 5 months)

The number of cases treated at Health Centres during the past nine years are given in the following table :-

(i) Health Centres (General).

Year.	New Out-patients	Re-attendances	Total attendances	Confinements.
1946	15201	4288	19429	68
1947	14109	8151	22260	47
1948	15347	14235	29582	34
1949	16893	12110	29003	38
1950	19285	13864	33199	34
1951	22214	17787	40001	67
1952	22353	12962	35315 (x)	43
1953	23767	6659	30426 (x)	56
1954	25926	9632	35558 (x)	62

(Note: "x" - Mahamba figures (6072) not included).

(ii) Mankaiana Cottage Hospital (16 beds).

Year	Admissions.	Out-patients					Confinements
		New Cases.		Re-attendances		Total attendances	
		E	N.E.	E	N.E.		
1946	957	25	7244	10	3135	10414	122
1947	734	36	5693	19	3999	9747	100
1948	762	43	6727	47	2853	9670	94
1949	736	38	7289	59	3030	10416	114
1950	797	29	7147	54	3966	11196	110
1951	829	61	6287	83	3400	9831	95
1952	835	56	6119	98	3225	9498	98
1953	960	28	7347	30	3609	11014	98
1954	927	34	6518	70	3795	10417	120

The average number of In-patients per day at this hospital was 29.7, as compared with 30.7 in 1953, and 30.0 in the previous year.

(iii) Cases treated at Nazerene Mission Health Centres.

Health Centre.	Out-patients.			
	New Cases.		Re-attendances	
	E	N.E.	E	N.E.
Stegi x	78	3953	81	3665
Endingeni x	9	5335	11	3721
Pigg's Peak x	185	3016	131	1699
Mliba x	-	864	-	1424
Mafuteni	-	359	-	1973
Bhekinkosi	-	275	-	641
Balggane	-	758	-	1404
Malinda	-	707	-	830
Ebenezer (Pilgrim Holiness Church)	18	1084	6	415
Mayiwane	-	1057	-	781
Totals	290	17408	229	16553

("x" = subsidized by Government).

The total attendances at Health Centres controlled by the Nazerene Mission was 34480, as compared with 34828 in 1953, and 27481 in 1952.

(iv) Good Shepherd Hospital, Stegi.

The cases treated by the District Surgeon and the staff of this institution are shown in the following table:-

	In-patients	New Cases		Re-attendances	
		M	F	M	F
European Officials	1	92	44	39	37
European General Population	8	122	107	71	54
African Officials	22	620	416	102	66
General Native Population	544	1865	3268	315	410
Eurafricans	19	102	84	43	25
TOTALS 1954	594	2801	3919	570	592
		6720		1162	
TOTALS 1953	27	5963		1073	
TOTALS 1952	-	5255		1653	
TOTALS 1951	-	4084		4923	

A second Medical Officer was appointed to this Hospital in December. In company with the District Commissioner, the District Surgeon paid 16 visits to Nomahasha where the following cases were treated:-

Out-patients, new cases	1156
Out-patients, re-attendances	284
Syphilis	3
Gonorrhoea	66
Malaria	3
Schistosomiasis	0
Pulmonary Tuberculosis	0

VI. PRISONS.

The prisons at Mbabane, Bremersdorp and Hlatikulu were inspected at weekly intervals, and in all instances, the health of the inmates was good throughout the year.

VII. SCIENTIFIC:

Details of the laboratory procedures carried out at the main centres in the territory, are given in the following table:

	Public Health Laboratory Bremersdorp.	Mbabane Hospital.	Hlatikulu Hospital.	Raleigh Fitkin Memorial Hospital.
Blood Films	3705	176	197	184
Total Blood Counts	69	-	409	-
Throat Swab Cultures (C. diphtheriae)	31	-	257	-
Bacteriological Smears)	110	2399	696	11
Faeces)	-	696	636	93
Urines)	-	3344	2388	3612
Sputa)	-	603	530	692
Serological tests for syphilis	8042	-	-	-
Identification of adult mosquitos	127	-	-	-
Identification of mosquito larvae	970	-	-	-
Identification of Snails	1305	-	-	-
Biochemical tests	21	-	-	-
Blood & Stool Cultures	181	-	-	-
Agglutination tests	348	-	-	-
Cerebrospinal fluids	-	- 2		-
Sedimentation Rates	-	-	749	-
Unspecified	-	-	58	

	Public Health Laboratory Bremersdorp	Mbabane Hospital	Hlatikulu Hospital	Raleigh Fitkin Memorial Hospital.
Totals 1954	14909	7220	5920	4592
Totals 1953	17538	8441	5660	4157
1952	11293	7215	3189	3475
1951	14077	5867	2066	4760
1950	14770	4279	1746	5981
1949	13688	3619	1220	4919
1948	15641	2865	1813	4912
1947	16428	2015	1427	3903

VIII. (a) MEDICO-LEGAL WORK ETC.

	Mbabane Pigg's Peak & Mankaiana District.	Hlatikulu District	Manzini & Stegi District.	Total
Post-mortem Examinations	39	24	28	91
Examinations for Assault etc.	76	43	157	276
Examinations for Tax Exemption	67	114	62	243
TOTALS	182	181	247	610

(b) Radiological Examinations.

	Mbabane Hospital		Hlatikulu Hospital		Raleigh Fitkin Memorial Hospital.		Total
	E	A	E	A	E	A	
Screenings	4	1	5	15	-	1	26
Radiographs	418	873	17	163	75	748	2294
TOTALS	422	874	22	178	75	749	2320

A Radiographer was appointed to the Mbabane Hospital on the 15th September.

I wish to express my appreciation of the loyal and efficient manner in which the members of the staff performed the ever increasing duties assigned to them.

J. C. J. CALLANAN

DIRECTOR OF MEDICAL SERVICES.

ANNUAL REPORT 1954.

PUBLIC HEALTH LABORATORY, BREMERSDORP.

A. STAFF.

During the year, Dr. O. Mastbaum, Malaria Medical Officer, was absent on six months' overseas leave.

No change occurred in African staff numbers.

B. MALARIA CONTROL.

General. Rainfall in inches, as recorded at the Bremersdorp Meteriological Station, is shown in the following table. For comparison, figures for the previous year are also listed.

TABLE I - MONTHLY RAINFALL AT BREMERSDORP.

	1954.	1953.
January	4.45	2.66
February...	10.83	4.13
March..	3.14	7.57
April.	2.77	0.91
May...	2.66	0.27
June..	0.05	0.06
July..	0.00	0.17
August	0.79	0.23
September..	3.28	1.77
October	5.59	2.71
November...	7.47	11.54
December...	3.20	2.39
TOTAL	44.23	34.41

Transmission Season 1953/54. As pointed out in our annual report of 1953, all malarious areas of Swaziland, including European-owned farms and scattered kraals on Crown Lands which hitherto were not under direct control, have now been included in the routine control scheme of this Department. This has been made possible through the grant of additional funds made available to the Department.

Hut-Spraying Operations. The early heavy summer rains in October and November, 1953 which favour heavy breeding of the main malaria vector, A. gambiae, made it necessary for the Department to commence spraying operations early in November; by the end of the year almost all huts in the bushveld areas had received the first treatment with residual insecticide. As in previous years, we have again used a 50% wettable powder B.H.C. of 10% gamma content, which after application gives a surface concentration of approximately 20 mg. per square foot.

Spraying operations were continued in January and extended right into March of 1954. All middleveld areas received the first and only treatment during January, while bushveld areas received the second application in January and February. Further, small pockets in these bushveld areas, known to be particularly hyperendemic, received a third treatment in March of 1954.

The following table gives a detailed summary of spraying operations carried out in the various districts of the territory during the transmission season 1953/54.

TABLE II/.....

TABLE II - HUT-SPRAYING OPERATIONS 1953/54.

Number of huts in bush and middleveld areas receiving first spray	72,500
Number of huts in bushveld areas receiving second spray	39,795
Number of huts in bushveld areas receiving third spray	3,132
Number of huts constituting native quarters in townships of Bremersdorp and Stegi	1,037
Number of huts on European farms receiving first spray	2,541
Number of huts on European farms receiving second spray	2,082
TOTAL	121,087

Additional Control Measures. In addition hereto, 275 European houses were sprayed with a 5% D.D.T. solution in kerosene. Also receiving this treatment were hospitals and gaols in Bremersdorp, Mbabane, Stegi and Mankaiana.

As in previous years, additional larvicidal measures using a 27½% D.D.T. Emulsion diluted 1/300, were carried out in and around the townships of Bremersdorp and Stegi and on the vast property of the Swaziland Irrigation Scheme and some smaller irrigation schemes in the South of the territory.

Dieldrin. As mentioned in the Annual Report of 1953, besides the routine measures outlined above, an experiment with Dieldrin was carried out in order to ascertain the residual effect under local conditions. For this purpose, approximately 300 huts were selected in the vicinity of rice fields on the property of the Swaziland Irrigation Scheme. These huts received a single spray-treatment with Dieldrin at the end of October, 1953. We were guided, with regard to concentration, by the advice of the Shell Company of South Africa (importers of Dieldrin) to use a solution of 2 oz. of the 50% wettable powder to 1 gallon of water. Sprayed in the usual way with our knapsack equipment, this gives a surface concentration of approximately 25 mg. per square foot. Following this treatment, the huts were checked with a knock-down insecticide at regular intervals throughout the season, for the presence of *A.gambiae.* Special importance was paid to the checking of these huts at night-time as well as during the day. All other huts on the property, totalling approximately 1,500, were sprayed with B.H.C. at intervals of eight weeks, and check-spray results were used for comparison. At the same time, routine blood examinations of children living in the Dieldrin-sprayed huts, and as a comparison, of children living in B.H.C.-sprayed huts, were carried out at monthly intervals.

Although the residual effect of Dieldrin is reputed to be at least six months, this was not confirmed in the above-outlined experiment. After a period of eighteen weeks adults of *A.gambiae,* although admittedly in small numbers, were recovered in the Dieldrin-treated huts, while no mosquitoes were found in those huts treated regularly with B.H.C.

Two possible explanations for the rather disappointingly short residual effect can be offered. Firstly, the solution of 2 oz. 50% wettable powder per gallon water, with a surface concentration of approximately 25 mg. per square foot, may have been too weak. Secondly, the walls of the treated huts are built of mud and it may be possible that a considerable proportion of the active material becomes absorbed in a short space of time.

Unfortunately/.....

Unfortunately little is known as regards the relationship between treated surfaces and insecticides used, and it is felt that unless the rather important question of chemical sorption of different surfaces is more thoroughly investigated under field conditions, very little can be gauged regarding the actual residual characteristics of an insecticide.

Although no fresh cases of malaria were observed in the Dieldrin-sprayed huts, it was decided to re-spray with B.H.C.; after this, no further adult mosquitoes were recovered.

It has been decided to repeat the Dieldrin experiments during the coming season, but the scope will be greatly enlarged. In addition to the 300 huts situated on the property of the Swaziland Irrigation Scheme, one of our bushveld areas in the Stegi lowveld will be included in the experiment; here, well over 3,000 huts will receive a single spray-treatment. In the light of the experience gained during the transmission season 1953/54, it is further intended to step up the concentration of Dieldrin per square foot; 3 oz. 50% wettable powder per gallon will be used, in order to effect a surface concentration of approximately 33 mg. per square foot. The outcome of these experiments will serve as a guide for future policy to be adopted in regard to residual spraying. In this connection, it is well to mention that the cost of Dieldrin is approximately three times that of B.H.C. (17d. as compared with $5\frac{1}{2}$d. per hut, without labour).

Transmission Season 1954/55. During the pre-season of 1955, i.e. in October and November, 1954, heavy rains (see Table I) occurred and it again became necessary to start control operations in all bushveld areas at the beginning of November; by the end of this year, well over 50,000 huts have been sprayed. At the same time, Dieldrin experiments were commenced in mid-November; these Dieldrin-spraying operations have been completed at the Swaziland Irrigation Scheme, and are almost completed in the Stegi bushveld area.

Irrigation Schemes. In accordance with the opening of a vast irrigation scheme in the Big Bend area, special attention has been paid to this district. The construction of the scheme has much to be desired, and a tremendous amount of seepage has occurred along the various canals; further, the rice fields and adjoining areas form a mass of standing water. Several inspections carried out at the end of November and beginning of December revealed a considerable amount of Anopheline breeding, including malaria-vector breeding. It is felt that here, as well as at the Swaziland Irrigation Scheme, imagicidal measures alone will not be sufficient, and that, if malaria control is to be effective, additional anti-larval measures (oiling) will have to be exercised. The position was explained to the individual farmers in December, and a general agreement was reached in the matter. A detailed oiling scheme has been drawn up, and at the beginning assistance will be given by trained labourers of the Department. It is hoped that the individual farmers in this large area will be equally as co-operative as the authorities at the Swaziland Irrigation Scheme.

Smaller irrigation schemes in the southern bushveld areas (Nsoko) are dealt with by the Department, which employs oil-gangs under the direct supervision of the local Native Malaria Assistant.

It is felt necessary to stress the influence of the growing agricultural development in the territory upon the staff of the malaria control unit. This development scheme has grown, and is liable to continue to grow, to such an extent that the present supervising staff consisting of a Malaria Medical Officer (who is at the same time in charge of a clinical pathological laboratory) and a Health Inspector (who has at the same time to deal with duties of general sanitation and Public Health) is becoming far too small to cope with the work covered by the Control Scheme.

Cost of Anti-Malaria Campaign - 1954. During the year 1954, wages for unskilled labour were increased from £3.10.0 to £4 per month. Further

to/......

to this, cost-of-living allowance of permanent European and African Staff also increased from 12½% to 19%. These two items, together with a considerable increase in cost for transport (by the inclusion of European farms and remote native areas hitherto uncontrolled) are the reasons for a slight increase in annual expenditure per head of population as well as per hut treated. The following table summarizes expenditure during 1954.

TABLE III - EXPENDITURE.

Personal emoluments of permanent European staff	£1,316[*]
Personal emoluments of permanent African staff	£2,040
Personal emoluments of African labourers...	£1,550
Insecticides, Equipment and Transport	£4,900
Total..	£9,806

[*] European staff consists, as mentioned above, of a Malaria Medical Officer and a Health Inspector. As both these officers devote only half their time to malaria control, only half salaries are included in expenditure statistics.

Annual cost per capita (180,000 Africans 3,000 Europeans)	13.1 pence.
Annual cost per hut treated	19.4 pence.

It is submitted that the cost of the malaria control scheme must still be regarded as very reasonable considering that our control is performed not in closed communities (villages etc.) but almost entirely amongst a widely-scattered rural community.

Malaria Blood Survey. As in previous years, routine surveys of bloods obtained by random samplong from children in all native areas under control were carried out throughout the Transmission Season (January to May) and the Non-Transmission Season (August to December). Of particular interest is the comparison between survey results of the Non-Transmission Seasons 1953 and 1954. As was pointed out in our Annual Report for 1953, after the epidemiological conditions which prevailed during the Transmission Season of 1953 the "carry-over" load of parasites amongst children during the following Non-Transmission Season (August to December 1953) was considerably higher than that observed in the previous year; it was hoped, however, that the results during the Non-Transmission Season 1954 would again show a more favourable picture. Parasite-rates, in age groups, are set out in the following table, and it is evident that indeed the parasite-rate in children has dropped to a very low figure, actually the lowest so far on record.

TABLE IV - PARASITE-RATES.

	Non-Transmission Season 1954.	Non-Transmission Season 1953.
CHILDREN 0 - 1 year ...	0.5% (198 exams) ...	1.4% (202 exams)
CHILDREN 1 - 5 years ...	1.1% (438 exams) ...	5.7% (313 exams)
CHILDREN 6 - 16 years ...	0.5% (380 exams) ...	3.5% (368 exams)
OVERALL PARASITE-RATE IN CHILDREN ...	0.8% (1016 exams) ...	3.7% (883 exams)

Swaziland Irrigation Scheme. As malaria conditions on irrigation schemes are not comparable with those of our ordinary rural areas, parasite-rates of children living on the property of the Swaziland Irrigation Scheme have been recorded separately. The number of bloods collected from this project being necessarily much smaller (in some age groups not even 100) only the total parasite-rate for all children is recorded here for the two years under review.

	Non-Transmission Season 1954.	Non-Transmission Season 1953.
SWAZILAND IRRIGATION SCHEME Overall parasite-rate in children	5.6% (194 exams)	8.1% (456 exams).

Although these percentages are still very much higher than those in our controlled native areas, the decrease in overall parasite-rate is evident.

It has to be clearly understood that the parasite-positive cases of the Non-Transmission Season recorded above do not represent children with an overt clinical attack of malaria, but are merely cases with a few trophozoites or an odd gametocyte in the peripheral blood.

Transmission Season Blood Survey. During the period January to May, 1954, a total of 2398 bloods were taken by our method of "random sampling" as follows -

2,019 from controlled native areas,
210 from Swaziland Irrigation Scheme,
169 from outside the territory,

The following table summarizes the results of the survey in our controlled native areas.

TABLE V - PARASITE-RATE IN CHILDREN IN ALL NATIVE AREAS UNDER CONTROL.

	Transmission Season 1954.	(Transmission Season 1953.)
Children 0 - 1 YEAR	0.5% (404 exams)	(6%)
Children 1 - 5 years	2.6% (1043 exams)	(11%)
Children 6 - 16 years	1.5% (572 exams)	(10%)
OVERALL PARASITE-RATE	1.8% (2019 exams)	

Of the 36 parasite-positive cases, only three exhibited heavy parasite infestation, presumably fresh infection; of these three cases, one came from an area closely adjoining Portuguese territory.

It will be observed that parasite-rates during the whole of the Transmission Season increased only very slightly over those in the Non-Transmission Season. Considering that amongst the 2019 bloods a fair percentage was sampled from children living on European farms, which, it will be remembered, have now for the first time fallen under the control of the Department, the results are indeed very satisfactory and are the lowest parasite-rate figures on record since the inception of malaria control in Swaziland.

Swaziland Irrigation Scheme. Transmission Season Blood Survey.

The condition on the property of the Swaziland Irrigation Scheme has been equally satisfactory. A parasite-rate of only 3.9%, amongst 210 children examined, was observed, which is actually less than that found during the previous Non-Transmission Season. It is of particular interest to note that no apparent case of fresh infection was observed amongst the children examined.

Blood Surveys in Areas outside the Territory. It could, of course, be argued that 1954 has been a year of exceptionally low mataria transmission, and that malaria incidence in non-controlled areas of similar topography and epidemiology to that of our bushveld areas would also exhibit a very low figure. To elucidate this point, two blood surveys were done in adjoining areas outside the territory, where no malaria control measures have been carried out. Altogether 169 bloods from children between the ages of birth and sixteen years were collected by the method of "random sampling"; the following table gives results of the examination of these bloods

Table/.....

TABLE VI - PARASITE-RATE IN AREAS OUTSIDE THE TERRITORY.

Children 0 - 1 year	40 cases examined; 23 parasite-positive	57½%
Children 1 - 5 "	57 cases examined; 24 parasite-positive	42%
Children 6 - 16 "	72 cases examined; 26 parasite-positive	36%

The above figures give an overall parasite-rate of 43%, with an infant parasite-rate of 57½%. Of the total 73 positive cases, 28 exhibited heavy infestation suggestive of a fresh infection of malaria.

The above figures prove without doubt that malaria transmission in non-controlled areas was by no means negligible in 1954, and presents a picture similar to that existing in Swaziland in the "pre-control" era.

Malaria Slides from Hospitals. During the Transmission Season 1954, a total of 139 blood-slides was received from local hospitals and Health Centres. Of these slides, 10 showed the presence of malaria parasites. An analysis of the cases shows that 2 of the infections were acquired outside the territory; 2 were sent in from the Swaziland Irrigation Scheme, but had visited areas outside the territory; 3 of the infections were acquired on an European farm in the Stegi district, where the farmer had refused to have his property sprayed; the remaining 3 infections (1 European and 2 Natives) were cases which came from controlled areas, but it could unfortunately not be ascertained whether the infections had been acquired in Swaziland or elsewhere.

From the results of the blood surveys, it can be concluded that malaria control has attained a satisfactory degree of efficiency, and it is hoped that, in maintaining the scope of our present control scheme, malaria transmission will remain at an insignificant level, and that malaria will cease to be a major Public Health problem in Swaziland.

C. LABORATORY.

During the absence on leave of the Malaria Medical Officer from April to October, local Hospitals were requested to curtail the submission of specimens to minimum. In spite of this, the total number of specimens dealt with in the routine section of the clinical pathology laboratory again showed a slight increase. A total of 8802 specimens was examined, in comparison with 8420 during 1953.

The following table gives detailed statistics of examinations performed in the laboratory during 1954; figures for 1953 are also listed.

TABLE VII - LABORATORY STATISTICS.

1. General Examinations:	1954.	1953.
Serological tests for Syphilis	8042	7653
Agglutination tests - Widal, Vi, Weil Felix and Brucellosis	348	287
Cultures ; blood, stool etc	181	158
Diphtheria cultures	31	44
Full blood counts & differential counts	69	105
Biochemical tests	21	30
Bacteriological Micro. - Smears, stools etc.	110	143
Total	8802	8420

TABLE VII - LABORATORY STATISTICS (CONTINUED).

2. Malaria & Bilharzia.		1954	1953.
Blood Slides:	from field staff	3540	5567
	from hospitals	165	740
Entomological:			
identification	of adult mosquitoes	127	531
	of mosquito larvae	970	1150
	of snails	1305	1130
	Total	6107	+ 9118

+ The reduction in number of malaria slides and entomological examinations is due to the fact that 1954 was a year of normal malaria transmission conditions, whereas in 1953 epidemiological conditions prevailed as described in the 1953 Annual Report.

Syphilis. A total of 8,042 specimens was submitted for examination. Of this total, 290 specimens were haemloysed or otherwise unsuitable for testing. Analysis of results obtained from the remaining 7752 specimens is as follows :-

Positive	2101	=	27.1%
Doubtful	567	=	7.3%
			34.4%

The overall total of 34.4% positive and doubtful reactions represents a slight increase (3.6%) over that in 1953, but compares closely with that in 1951 and 1952.

Enteric Group of Fevers. 348 specimens for Widal test were submitted, an increase of 61 of the past year 1953. Analysis of positive agglutinations (diagnostic titre) is as follows :-

B. typhosus "H" and "O"	74
B. paratyphosus "A"	1
B. paratyphosus "B"	4
B. paratyphosus "C"	1

In addition, 181 cultures were received. In 38 of these, B. typhosus was isolated. No B. paratyphosus was isolated.

Weil Felix and Brucellosis. Of 6 specimens received, no positive agglutination from Weil Felix or Brucellosis tests resulted.

Diphtheria. 31 throat swabs were submitted for examination. Culture of three of these yielded growth morphologically resembling C. diphtheriae (in comparison with 7 on 1953).

STAFF NOTE. In conclusion, I wish to express my appreciation of the work Miss Bredell, B.Sc., has done during the year, and especially during my absence of leave during which period she was in charge of the clinical pathology laboratory and performed the technical as well as the diagnostic side to the greatest satisfaction.

The valuable assistance of the Health Inspector, Mr. van Eeden, in supervising the malaria control work, deserves to be placed on record.

APPENDIX I.

GOVERNMENT HOSPITALS.

RETURN OF DISEASES AND DEATHS (IN-PATIENTS) FOR THE YEAR

1954.

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admission		Total Deaths		Total Cases Treated.		Remaining in hospital at end of year.		Out patients.	
			E	A	E	A	E	A	E	A	E	A	E	A
A 1	001-008	Tuberculosis of respiratory system	-	5	-	50	-	3	-	49	-	6	-	52
A 2	010	Tuberculosis of meninges and central nervous system	-	-	-	1	-	1	-	1	-	-	-	-
A 3	011	Tuberculosis of intestines, peritoneum and mesenteric glands	-	-	-	2	-	-	-	1	-	1	-	1
A 4	012,013	Tuberculosis of bones and joints	-	6	-	29	-	3	-	33	-	2	-	16
A 5	014-019	Tuberculosis, all other forms	-	3	-	45	-	1	-	43	-	5	-	40
A 6	020	Congenital Syphilis	-	3	-	58	-	1	-	60	-	1	-	78
A 7	021	Early Syphilis	-	8	-	136	-	-	-	139	-	5	8	360
A 8	024	Tabes dorsalis	-	-	-	1	-	-	-	1	-	-	-	18
A 9	025	General Paralysis of insane	-	-	-	1	-	-	-	1	-	-	-	-
A 10	022,023, 026-029	All other syphilis	-	1	-	24	-	1	-	25	-	-	-	238
A 11	030-035	Gonococcal infection	-	1	-	33	-	-	-	34	-	-	13	550
A 12	040	Typhoid Fever	1	5	-	93	-	-	2	92	-	6	1	14
A 13	031,042	Paratyphoid fever and other Salmonella infections	-	-	-	1	-	-	-	1	-	-	-	-
A 14	043	Cholera	-	-	-	-	-	-	-	-	-	-	-	-
A 15	044	Brucellosis (undulant fever)	-	-	-	-	-	-	-	-	-	-	-	-
A 16(a)	045	Bacillary dysentery	-	-	1	84	-	-	1	81	-	3	19	192

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admission		Total Deaths		Total Cases Treated		Remaining in hospital at end of year.		Out-patients.	
			E	A	E	A	E	A	E	A	E	A	E	A
A 16 (b)	046	Amoebiasis	-	1	1	86	-	3	1	86	-	1	3	42
A 16 (c)	047,048	Other unspecified forms of dysentery	-	-	-	-	-	7	-	-	-	-	1	-
A 17	050	Scarlet Fever	-	-	1	-	-	-	1	-	-	-	1	-
A 18	051	Streptococcal sore throat	-	-	-	40	-	-	-	38	-	2	7	-
A 19	052	Erysipelas	-	-	-	-	-	-	-	-	-	-	-	-
A 20	053	Septicaemia and pyaemia	-	-	-	1	-	1	-	1	-	-	-	-
A 21	055	Diphtheria	-	-	-	1	-	1	-	1	-	-	1	1
A 22	056	Whooping cough	-	2	-	39	-	2	-	29	-	2	8	154
A 23	057	Meningococcal infections	-	-	-	3	-	-	-	3	-	-	-	-
A 24	058	Plague	-	-	-	-	-	-	-	-	-	-	-	-
A 25	060	Leprosy	-	-	-	2	-	-	-	2	-	-	-	11
A 26	061	Tetanus	-	-	-	2	-	-	-	2	-	-	-	-
A 27	062	Anthrax	-	-	-	-	-	-	-	-	-	-	-	-
A 28	080	Acute poliomyelitis	-	-	-	8	-	1	-	5	-	3	-	-
A 29	082	Acute infectious encephalitis	-	-	-	-	-	-	-	-	-	-	1	-
A 30	081,083	Late effects of acute poliomyelitis and acute infectious encephalitis	-	-	-	-	-	-	-	-	-	-	-	-
A 31	084	Smallpox	-	-	-	-	-	-	-	-	-	-	-	-
A 32	085	Measles	-	-	-	5	-	-	-	5	-	-	10	16
A 33	091	Yellow Fever	-	-	-	-	-	-	-	-	-	-	-	-
A 34	092	Infectious hepatitis	-	-	5	1	-	-	5	1	-	-	6	3
A 35	094	Rabies	-	-	-	-	-	-	-	-	-	-	-	-

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admission		Total Deaths		Total Cases Treated		Remaining in hospital at end of year		Out Patients.	
			E	A	E	A	E	A	E	A	E	A	E	A
A 36 (a)	100	Louse borne epidemic typhus	-	-	-	-	-	-	-	-	-	-	-	-
(b)	101	Flea borne endemic typhus (murine)	-	-	-	-	-	-	-	-	-	-	-	-
(c)	104	Tick broen epidemic typhus	-	-	2	-	-	-	2	-	-	-	12	-
(d)	105	Mite borne typhus	-	-	-	-	-	-	-	-	-	-	-	-
(e)	102,103 106-108	Other and unspecified typhus	-	-	-	-	-	-	-	-	-	-	-	-
A 37 (a)	110	Vivax malaria (benign tertian)	-	-	-	-	-	-	-	-	-	-	-	-
(b)	111	Malariae malaria (quartan)	-	-	-	-	-	-	-	-	-	-	-	1
(c)	112	Falciparum malaria (malignant tertian)	-	-	-	2	-	-	-	2	-	-	4	3
(d)	115	Black-water fever	-	-	-	-	-	-	-	-	-	-	-	-
(e)	113,114, 116,117	Other and unspecified forms of malaria	-	-	-	6	-	1	-	6	-	-	3	16
A 38 (a)	123.0	Schistosomiasis intestinal (S. mansoni)	-	-	1	-	-	-	1	-	-	-	-	-
(b)	123.1	Schistosomiasis vesical (S.haematobium)	-	5	1	100	-	-	1	99	-	6	6	318
(c)	123.2	Schistosomiasis pulmonary (S. japonicum)	-	-	-	-	-	-	-	-	-	-	-	-
(d)	123.3	Other and unspecified schistosomiasis	-	-	-	1	-	-	-	1	-	-	-	-
A 39	125	Hydatid disease	-	-	-	-	-	-	-	-	-	-	-	-
A 40 (a)	127	Onchocerciasis	-	-	-	-	-	-	-	-	-	-	-	-
(b)		Loiasis	-	-	-	-	-	-	-	-	-	-	-	-
(c)		Filariasis (bancrofti)	-	-	-	-	-	-	-	-	-	-	-	-
(d)		Other filariasis	-	-	-	1	-	-	-	1	-	-	-	-
A 41	129	Ankylostomiasis	-	-	-	-	-	-	-	-	-	-	-	-
A 42	126	Tapeworm 'infestation) and other cestoda infestations	-	-	3	12	-	1	3	12	-	-	5	333

Intermediate List No.	Detailed List No.1	Group Causes	Cases remaining in hospital from previous year		Total Admission		Total Deaths		Total Cases Treated		Remaining in hospital at end of year.		Out Patients.	
			E	A	E	A	E	A	E	A	E	A	E	A
A 42 (b)	130.0	Ascariasis	-	-	-	12	-	1	-	12	-	-	2	185
(c)	130.3	Guinea worm (dracunculosis)	-	-	-	-	-	-	-	-	-	-	1	10
(d)	124,128 130.1,130.2	Other diseases due to helminths	-	-	-	-	-	-	-	-	-	-	9	5
A 43 (a)	037	Lymphogranuloma venereum	-	-	-	2	-	-	-	2	-	-	-	2
(b)	038	Granuloma inguinale, venereal	-	2	-	1	-	-	-	3	-	-	-	7
(c)	039	Other and unspecified venereal diseases	-	-	-	1	-	-	-	1	-	-	-	2
(d)	049	Food Poisoning infection and intoxication	-	-	-	-	-	-	-	-	-	-	1	-
(e)	071	Relapsing Fever	-	-	-	-	-	-	-	-	-	-	-	-
(f)	072	Leptospirosis icterohaemorrhagica (Weil's disease)	-	-	-	-	-	-	-	-	-	-	-	-
(g)	073	Yaws	-	-	-	-	-	-	-	-	-	-	-	-
(h)	087	Chickenpox	-	-	1	2	-	-	1	2	-	-	7	28
(i)	090	Dengue	-	-	-	-	-	-	-	-	-	-	-	-
(j)	095	Trachoma	-	-	-	-	-	-	-	-	-	-	-	-
(k)	096.7	Sandfly fever	-	-	-	-	-	-	-	-	-	-	-	-
(l)	120	Leishmaniasis	-	-	-	-	-	-	-	-	-	-	-	-
(m)	121 (a)	Trypanosomiasis gambiensis	-	-	-	-	-	-	-	-	-	-	-	-
	(b)	Trypanosomiasis rhodesiensis	-	-	-	-	-	-	-	-	-	-	-	-
	(c)	Other and unspecified Trypanosomiasis	-	-	-	-	-	-	-	-	-	-	-	-
(n)	131	Dermatophytosis	-	-	-	-	-	-	-	-	-	-	41	180
(o)	135	Scabies	-	-	-	2	-	-	-	2	-	-	-	62

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admission		Total Deaths		Total Cases Treated		Remaining in hospital at end of year		Out Patients	
			E	A	E	A	E	A	E	A	E	A	E	A
A 43 (p)	036,054,059 063,064,070 074,086,088, 096.6,096.8, 098.9, 122, 132-134, 136-138	All other diseases classified as infective and parasitic	-	-	3	3	-	-	3	3	-	-	24	46
A 44	140-148	Malignant neoplasm of buccal cavity and pharynx	-	-	-	-	-	-	-	-	-	-	-	-
A 45	150	Malignant neoplasm of oesophagus	-	-	-	-	-	-	-	-	-	-	-	-
A 46	151	Malignant neoplasm of stomach	-	-	-	1	-	-	-	1	-	-	1	-
A 47	152-153	Malignant neoplasm of intestine except rectum	-	-	-	1	-	1	-	1	-	-	-	-
A 48	154	Malignant neoplasm of rectum	-	-	-	-	-	-	-	-	-	-	-	-
A 49	161	Malignant neoplasm of larynx	-	-	-	-	-	-	-	-	-	-	-	-
A 50	162,163	Malignant neoplasm of trachea, and of bronchus and lung not speficied as secondary	-	-	-	1	-	-	-	1	-	-	-	-
A 51	170	Malignant neoplasm of breast	-	-	-	2	-	-	-	2	-	-	1	1
A 52	171	Malignant neoplasm of other and unspecified parts of uterus	-	-	-	-	-	-	-	-	-	-	-	-
A 54	177	Malignant neoplasm of prostate	-	-	1	-	-	-	1	-	-	-	-	-
A 55	190-191	Malignant neoplasm of skin	-	-	1	-	-	-	-	-	1	-	3	1
A 56	196,197,	Malignant neoplasm of bone and connective tissue	-	-	-	2	-	-	-	1	-	1	-	-

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admission		Total Deaths		Total Cases Treated		Remaining in hospital at end of year		Out patients	
			E	A	E	A	E	A	E	A	E	A	E	A
A 57	155-160 164,165, 175,176, 178-181 192-195 198,199	Malignant neoplasm of all other and unspecified sites	-	1	-	3	-	2	-	3	-	1	2	1
A 58	204	Leukaemia and aleukaemia	-	-	-	-	-	-	-	-	-	-	1	-
A 59	200-203, 205	Lymphosarcoma and other neoplasms of lymphatic and haematopoietic system	-	-	-	-	-	-	-	-	-	-	-	6
A 60	210-239	Benign neoplasms and neoplasms of unspecified nature	-	-	1	46	-	-	1	45	-	1	10	38
A 61	250,251	Nontoxic Goitre	-	-	-	3	-	-	-	3	-	-	1	31
A 62	252	Thyrotoxicosis with or without goitre	-	-	-	-	-	-	-	-	-	-	5	18
A 63	260	Diabetes mellitus	-	-	-	3	-	-	-	3	-	-	1	1
A 64 (a)	280	Beriberi	-	-	-	4	-	-	-	4	-	-	-	7
(b)	281	Pellagra	-	-	-	29	-	6	-	29	-	-	-	74
(c)	282	Scurvy	-	-	-	3	-	-	-	1	-	2	2	8
(d)	283-286	Other deficiency states	-	6	-	94	-	14	-	98	-	2	28	139
A 65 (a)	290	Pernicious and other hyperchromic anaemias	-	-	-	-	-	-	-	-	-	-	-	2
(b)	291	Iron deficiency anaemia (Hypochromic)	-	1	-	-	-	-	-	-1	-	-	10	45
(c)	292,293	Other specified and unspecified anaemias	-	-	1	-	-	-	1	-	-	-	5	49
A 66 (a)	241	Asthma	-	-	1	17	-	-	1	16	-	1	30	59
(b)	240 242-245,253, 254,270-277, 287-289, 294-299	All other allergic disorders endocrine, metabolic and blood diseases	-	-	-	8	-	-	-	8	-	-	14	52

Intermediate List No.		Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admission.		Total Deaths		Total Cases Treated		Remaining in hospital at end of year		Out-Patients	
				E	A	E	A	E	A	E	A	E	A	E	A
A 67		300,309	Psychoses	-	-	2	2	-	-	2	2	-	-	4	-
A 68		310-324,326	Psychoneuroses and disorders of personality	-	-	3	10	-	1	3	10	-	-	111	166
A 69		325	Mental deficiency	-	-	-	1	-	-	-	1	-	-	-	3
A 70		330-334	Vascular lesions affecting central nervous system	-	-	3	4	1	3	2	4	1	-	6	3
A 71		340	Non-meningococcal meningitis	-	-	-	1	-	-	-	1	-	-	-	1
A 72		345	Multiple sclerosis	-	-	-	-	-	-	-	-	-	-	-	-
A 73		353	Epilepsy	-	1	1	24	-	2	1	24	-	1	3	35
A 74		370-379	Inflammatory diseases of eye	-	4	2	116	-	-	2	117	-	3	61	476
A 75		385	Cataract	-	-	-	1	-	-	-	1	-	-	1	16
A 76		387	Glaucoma	-	1	-	-	-	-	-	1	-	-	-	1
A 77	(a)	390	Otitis externa	-	2	1	18	-	-	1	20	-	-	79	210
	(b)	391-393	Otitis media and mastoiditis	-	2	6	70	-	1	6	72	-	-	32	209
A 78	(a)	380-384, 386,388,389	All other duseases and conditions of eye	-	-	3	19	-	-	3	19	-	-	24	97
	(b)	341,344, 350,352,354 357,360-369, 395,398,	All other diseases of the nervous system and sense organs	-	1	-	24	-	1	-	24	-	1	32	311
A 79		400-402	Rheumatic fever	-	-	-	6	-	-	-	6	-	-	1	25
A 80		410-416	Chronic rheumatic heart disease	-	-	1	15	-	2	1	13	-	2	2	17
A 81		420-422	Arteriosclerotic and degenerative heart disease	1	1	15	8	4	3	16	9	-	-	10	2
A 82		430-434	Other diseases of heart	-	-	2	19	-	5	2	19	-	-	22	58
A 83		440-443	Hypertension with heart disease	-	-	5	3	2	-	5	3	-	-	7	4

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admission		Total Deaths		Total Cases Treated		Remaining in hospital at end of year		Out Patients.	
			E	A	E	A	E	A	E	A	E	A	E	A
A 84	444-447	Hypertension without mention of heart	-	-	-	2	-	-	-	1	-	1	16	10
A 85	450-456	Diseases of arteries	-	1	-	1	-	-	-	2	-	-	-	2
A 86	460-468	Other diseases of circulatory system	-	1	6	19	-	1	6	20	-	-	38	55
A 87	470-475	Acute upper respiratory infections	-	2	8	12	-	-	8	12	-	2	251	719
A 88	480-483	Influenza	-	1	11	104	-	1	11	103	-	2	299	811
A 89	490	Lobar pneumonia	-	4	5	130	-	4	5	127	-	7	4	55
A 90	491	Bronchopneumonia	-	9	4	228	-	12	3	232	1	5	8	183
A 91	492-493	Primary atypical, other and unspecified pneumonia	-	-	6	11	-	-	6	11	-	-	6	14
A 92	500	Acute bronchitis	-	4	8	115	1	-	8	113	-	6	175	1951
A 93	501,502	Bronchitis, chronic and unqualified	-	1	2	39	-	-	2	40	-	-	21	403
A 94	510	Hypertrophy of tonsils and adenoids	-	-	11	7	-	-	11	6	-	1	24	151
A 95	518,521	Empyema dna abscess of lung	-	1	-	2	-	-	-	3	-	-	1	-
A 96	519	Pleurisy	-	-	1	22	-	-	1	21	-	1	8	34
A 97 (a)	523	Pneumoconiosis	-	-	-	6	-	-	-	5	-	1	2	14
(b)	511-517 520-522 524-527	All other respiratory diseases	-	2	3	8	-	-	3	10	-	-	61	56
A 98 (a)	530	Dental Caries	-	-	4	24	-	-	4	22	-	2	142	976
(b)	531-535	All other diseases of teeth and supporting structures	-	1	1	30	-	-	1	31	-	-	34	233
A 99	540	Ulcer of stomach	-	-	8	3	-	1	8	3	-	-	21	2
A 100	541	Ulcer of duodenum	-	-	5	1	-	-	5	1	-	-	10	2
A 1015	543	Gastritis and duodenitis	-	-	4	29	-	-	4	26	-	3	45	663

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admissions		Total Deaths		Total cases treated.		Remaining in hospital at end of year.		Out patients.	
			E	A	E	A	E	A	E	A	E	A	F	A
A 102	550,553	Appendicitis	-	-	17	14	-	-	17	13	-	1	26	9
A 103	560,561-570	Intestinal obstruction and hernia	-	-	4	12	-	1	4	10	-	2	20	7
A 104 (a)	571.0	Gastro-enteritis and colitis between 4 weeks and 2 years	-	3	4	165	-	7	4	160	-	8	28	617
(b)	571.1	Gastro-enteritis and colitis ages 2 years and over	-	1	3	50	-	1	3	49	-	2	137	443
(c)	572	Chronic enteritis and ulcerative colitis	-	-	1	1	-	-	1	1	-	-	1	1
A 105	581	Cirrhosis of liver	-	-	-	6	-	-	-	6	-	-	1	2
A 106	584,585	Cholelithiasis and cholecystitis	-	-	1	2	-	-	1	2	-	-	15	15
A 107	536-539, 542,544,545 573-580,582, 583,586,587	Other diseases of digestive system	-	2	7	42	-	2	7	42	-	2	83	575
A 108	590	Acute nephritis	-	1	-	4	-	-	-	5	-	-	4	33
A 109	591-594	Chronic, other and unspecified nephritis	-	-	-	9	-	1	-	7	-	2	-	1
A 110	600	Infections of kidney	-	-	6	5	-	-	6	5	-	-	7	12
A 111	602,604	Calculi of urinary system	-	-	2	-	-	-	2	-	-	-	1	-
A112	610	Hyperplasis of prostate	-	-	2	1	-	-	2	-	-	1	2	-
A 113	620,621	Diseases of breast	1	-	-	16	-	-	1	16	-	-	7	39
A 114 (a)	613	Hydrocele	-	-	-	10	-	-	-	10	-	-	-	48
(b)	634	Disorders of menstruation	-	-	2	16	-	-	2	16	-	-	30	372
(c)	601,603, 605-609,611, 612,614,617, 622-633, 635-637	All other diseases of the genito-urinary system	-	7	16	160	-	4	16	167	-	-	179	991

Intermediate Kist No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admission		Total Deaths		Total Cases Treated		Remaining in hospital at end of year.		Out Patients	
			E	A	E	A	E	A	E	A	E	A	E	A
A 115	640,641,681, 682,684	Sepsis of pregnancy, childbirth and the puerperium	-	-	-	3	-	-	-	3	-	-	-	-
A 116	642,652 685,686	Toxaemias of pregnancy and the puerperium	-	-	-	3	-	1	-	3	-	-	4	1
A 117	643,644 670-672	Haemorrhage of pregnancy and child-birth	-	-	-	2	-	-	-	2	-	-	-	-
A 118	650	Abortion without mention of sepsis or toxaemia	-	-	3	26	-	-	3	25	-	1	1	16
A 119	651	Abortion with sepsis	-	-	-	9	-	-	-	8	-	1	-	4
A 120 (a)	645-649 673-680,683 687-689	Other complications of pregnancy, childbirth and puerperium	-	-	8	75	-	2	8	73	-	2	3	14
(b)	660	Delivery without complications	1	24	31	599	-	-	32	579	-	44	44	829
A 121	690-698	Infections of skin and subcutaneous tissue	-	16	8	204	-	1	8	209	-	11	257	348
A 122	720-725	Arthritis and spondylitis	-	-	1	33	-	-	1	31	-	2	10	170
A 123	726,727	Muscular rheumatism and rheumatism unspecified	-	1	1	32	-	-	1	32	-	1	39	447
A 124	730	Osteomyelitis and periostitis	-	1	2	24	-	-	2	25	-	-	5	15
A 125	737 745-749	Ankylosis and acquired musculoskeletal deformities	-	-	4	12	-	-	4	12	-	-	4	9
A 126 (a)	715	Chronic ulcer of skin (including tropical ulcer)	-	-	1	4	-	-	1	4	-	-	2	20
(b)	700-714,716	All other diseases of the skin	1	1	1	14	-	-	2	15	-	-	33	310
(c)	7310736, 738-744	All other diseases of musculoskeletak system	-	-	3	7	-	1	3	7	-	-	110	15
A 127	751	Spina bifida and meningocele	-	-	-	1	-	-	-	1	-	-	-	-
A 128	754	Congenital malformations of circulatory system	-	-	-	1	-	-	-	1	-	-	-	12

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year.		Total Admission		Total Deaths		Total cases treated.		Remaining in hosp- at end of year.		Out Patients.	
			E	A	E	A	E	A	E	A	E	A	E	A
A 129	750,752, 753,755-759	All other congenital malformations	-	-	1	6	-	-	1	6	-	-	-	-
A 130	760,761	Birth injuries	-	-	-	3	-	1	-	3	-	-	-	-
A 131	762	Postnatal asphyxia and atelectasis	-	-	-	-	-	-	-	-	-	-	1	-
A 132 (a)	764	Diarrhoea of newborn (under 4 weeks)	-	-	-	-	-	-	-	-	-	-	-	2
(b)	765	Ophthalmia neonatorum	-	-	-	20	-	-	-	20	-	-	-	16
(c)	763,766-768	Other infections of new born	-	-	-	1	-	-	-	1	-	-	-	1
A 133	770	Haemolytic disease of newborn	-	-	-	-	-	-	-	-	-	-	-	-
A134	769,771-772	All other defined diseases of early infancy	-	-	1	2	-	-	1	2	-	-	1	58
A 135	773-776	Ill-defined diseases peculair to early infancy and immaturity unqualified	-	-	-	27	-	8	-	27	-	-	1	6
A 136	794	Senility without mention of psychosis	-	-	-	-	-	-	-	-	-	-	-	-
A 137 (a)	788.8	Pyrexia of unknown origin	-	-	4	12	-	-	3	12	1	-	9	14
(b)	793,642,652	Observation without need for further medical care	-	-	1	24	-	-	1	22	-	2	322	1122
(c)	780-787, 788.1-788.7 788.9 789-792,795	All other ill-defined causes of morbidity	-	-	1	2	-	-	1	2	-	-	68	21

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year		Total Admission		Total Deaths		Total Cases Treated		Remaining in hospital at end of year		Out patients.	
			E	A	E	A	E	A	E	A	E	A	E	A
		"E" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS POISONINGS, AND VIOLENCE (EXTERNAL CAUSE).												
AE 138	E810-E835	Motor vehicle accidents	-	1	8	40	-	1	8	40	-	1	19	19
AE 139	E800-E802 E840-E866	Other transport accidents	-	-	-	25	-	-	-	24	-	1	1	28
AE 140	E870-E895	Accidental poisoning	-	-	-	45	-	1	-	44	-	1	1	6
AE 141	E900-E904	Accidental falls	-	11	12	204	-	1	12	205	-	10	118	363
AE 142	E612	Accident caused by machinery	-	-	-	15	-	-	-	14	-	1	3	14
AE 143	E916	Accident caused by fire and explosion of combustible material	-	4	-	28	-	3	-	29	-	3	8	73
AE 144	E917,E918	Accident caused by hot substance, corrosive liquid, steam, and radiation	-	4	-	47	-	3	-	50	-	1	6	69
AE 145	E919	Accident caused by airearm	-	-	1	2	-	-	1	2	-	-	-	1
AE 146	E929	Accidental drowning and submersion	-	-	-	-	-	-	-	-	-	-	-	-
AE 147	E910,E915, E913-E915 E920-E928 E930-E965	All other accidental causes	-	4	2	169	-	-	2	170	-	3	133	609
AE 148	E970-E979	Suicide and self-inflicted injury	-	-	-	4	-	-	-	4	-	-	7	2
AE 148	E980-E985	Homicide and injury purposely inflicted on other persons (not in war)	-	3	1	187	-	6	1	181	-	9	8	195
AE 150	E990-E999	Injury resulting from operations of war	-	-	-	-	-	-	-	-	-	-	-	-
		GRAND TOTAL	5	173	316	4671	9	133	317	4643	4	201	3634	19479
		ATTENDANTS	-	17	-	570	-	-	-	560	-	27	-	-
		RE-ATTENDANCES	-	-	-	-	-	-	-	-	-	-	5541	16367

Intermediate List No.	Detailed List No.	Group Causes	Cases remaining in hospital from previous year		Total Admission		Total Deaths		Total Cases Treated		Remaining in hospital at end of y year		Out-Patients	
			E	A	E	A	E	A	E	A	E	A	E	A
		"N" CODE ALTERNATIVE CLASSIFICATION OF ACCIDENTS, POISONINGS, AND VIOLENCE (NATURE OF INJURY)												
AN 138	N800-N804	Fracture of Skull	-	1	-	24	-	3	-	24	-	1	-	3
AN 139	N805-N809	Fracture of spine and trunk	-	-	3	15	-	-	3	14	-	1	10	12
AN 140	N810-N829	Fracture of limbs	-	12	9	132	-	1	9	135	-	9	18	75
AN 141	N830-N839	Dislocation without fracture	-	-	1	15	-	-	1	14	-	1	4	6
AN 142	N840-N848	Sprains and strains of joints and adjacent muscles	-	-	1	30	-	-	1	29	-	1	68	198
AN 143	N850-N856	Head injury (excluding fracture)	-	-	3	31	-	-	3	29	-	2	8	80
AN 144	N860-N869	Internal injury of chest, abdomen and pelvis	-	-	-	9	-	2	-	9	-	-	-	18
AN 145	N870-N908	Laceration and open wounds	-	6	6	293	-	2	6	290	-	9	101	622
AN 146	N910-N929	Superficial injury, contusion and crushing with intact skin surface	-	-	1	38	-	-	1	38	-	-	62	151
AN 147	N930-N936	Effects of foreign body entering through orifice	-	-	-	13	-	-	-	12	-	1	13	64
AN 148	N940-N949	Burns	-	7	-	68	-	6	-	72	-	3	12	139
AN 149	N960-N979	Effects of poisons	-	1	-	53	-	1	-	53	-	1	5	11
AN 150	N950-N959 N980-N999	All other and unspecified effects of external causes	-	-	-	17	¾	-	-	16	-	1	6	12

METEROLOGICAL OBSERVATIONS.

SWAZILAND 1954.

Station - Mbabane (Highveld).

Alt. 3,700 feet.

Month	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total	No. of days.
January	20.5	14.1	29.5	10.0	5.05	15
February	24.2	14.2	31.5	9.7	8.90	16
March	22.8	13.0	29.3	8.3	3.26	9
April	20.5	10.5	29.0	5.5	2.88	11
May	22.0	9.9	27.5	3.0	2.08	6
June	16.6	5.3	22.0	0.1	0.26	2
July	19.6	4.9	23.5	3.4	-	-
August	19.5	5.9	28.5	4.1	2.23	7
September	20.8	9.1	31.2	4.3	4.21	10
October	24.4	11.6	33.1	7.3	6.73	13
November	23.5	15.2	31.2	8.3	6.56	12
December	23.9	12.4	33.0	9.5	7.49	13
Year	70.7°F	50.9°F	91.58°F	32.18°F	49.65	114

/Average 56.46

Station - Bremersdorp (Middleveld)

January	24.4	18.1	35.0	15.1	4.45	14
February	28.9	18.7	35.5	15.4	10.83	18
March	27.6	16.5	32.1	10.0	3.14	9
April	25.7	14.0	34.6	9.5	2.77	11
May	26.2	11.4	32.6	6.6	2.66	6
June	22.4	7.5	26.6	5.0	0.05	1
July	24.8	6.6	32.2	3.5	-	-
August	24.9	9.6	32.4	6.1	0.79	7
September	24.9	13.6	35.1	10.10	3.28	11
October	26.1	14.8	38.8	10.60	5.59	14
November	26.0	16.5	33.0	13.50	7.47	18
December	28.1	17.6	37.4	14.1	3.20	14.
Year	78.49°F	56.66°F	99.84°F	38.3°F	44.23	123

/Average 33.78

METEROLOGICAL OBSERVATIONS.

SWAZILAND 1954.

Station - Hlatikulu (Highveld)

Alt. 3890 feet

Month	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min	Actual Max.	Actual Min.	Total	No.of days
January	22.1	14.6	28.0	10.5	5.14	11
February	23.2	15.1	30.0	12.5	9.01	14
March	29.4	8.5	21.7	14.5	3.50	7
April	27.5	7.5	20.4	12.1	3.11	6
May	22.1	12.7	26.5	10.0	2.95	3
June	16.5	7.4	20.0	4.5	0.02	1
July	19.2	7.9	22.5	1.0	-	-
August	21.5	8.1	27.3	5.0	1.70	4
September	19.8	10.9	31.0	6.0	2.93	9
October	20.6	12.2	32.5	8.0	6.44	15
November	21.0	12.5	31.5	8.0	7.19	15
December	22.8	13.5	33.5	9.5	2.07	8
Year	71.85°F	51.63°F	92.3°F	33.8°F	44.06	93

/Average 45.85

Station - Stegi (Lowveld).

Month	Air Temperature °C				Rainfall	
	Mean Max.	Mean Min.	Actual Max.	Actual Min.	Total	No. of days.
January	28.2	16.0	33.2	12.5	1.88	7
February	28.3	17.0	36.0	14.4	7.21	10
March	26.8	15.4	33.0	10.4	1.94	5
April	25.9	16.6	33.4	12.0	2.46	7
May	24.6	12.7	31.5	8.0	1.37	3
June	20.3	9.4	25.0	6.0	0.65	4
July	22.0	8.6	26.6	3.5	-	-
August	22.4	10.3	30.1	7.5	0.84	4
September	24.3	12.7	32.5	10.2	8.39	5
October	25.3	14.4	36.0	11.2	7.98	16
November	34.5	15.1	44.0	12.5	5.70	12
December	34.0	15.3	49.2	12.0	5.35	11
Year	79.49°F	56.37°F	120.56°F	38.3°F	43.77	84

/Average 29.61